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The Role of Dysentery in the Causation of Ascites

AS GLEANED FROM A STUDY OF POST-MORTEM RECORDS AND OBSERVATIONS.

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Many cases of ascites are admitted every year into the wards of the King George Hospital, Vizagapatam, and we had opportunities of examining post-mortem most of the persons who died in the wards. In this short paper we wish to present our observations on the causation of ascites in this district of Vizagapatam by making an analysis of the post-mortem appearances recorded in persons who died of diseases in which ascites was also present. The junior author is at present investigating the causation of ascites, in the wards of the King George Hospital, Vizagapatam, and the results of his clinical investigation will be published later. In this paper we wish to confine ourselves to the post-mortem evidences alone.

The causes of ascites are many and it is not necessary to discuss them here. While the causation of ascites in most cases can be clinically ascertained, still there is a group in which the cause is very obscure. Several causes have been given to explain the appearance of ascites in such obscure cases. Col. Megaw (1921 and 1924) brought to the notice of the medical profession in India his views on the subject. According to them, most of the cases of ascites belonging to this obscure group are due to a fibrosis of the peritoneum, especially that lining the upper part of the abdominal cavity, due to the passage of irritant toxins through the walls of the large intestines in acute or chronic bacillary dysentery and this process is specially marked in those who are not treated at all or treated by opiates, due to the accumulation of toxins. As a result of this thickening of the peritoneum there is defective absorption of fluid from the peritoneal cavity resulting in ascites. In 5 autopsies referred to in this connection, there was thickening of the peritoneum in all the cases, with adhesions between the colon and the neighbouring viscera, with or without active dysenteric ulceration of the intestines. Rogers (1913) on the other hand considered that ascites, occurring as a complication of dysentery, was due to cirrhosis of liver. Cunningham (1923) found in all the cases of ascites, giving a history of antecedent attacks of dysentery, advanced fibrotic changes in the liver, and concluded that the ascites in these cases was due to cirrhosis of the liver and not to thickening of the peritoneum.

We wish to discuss in this paper the role of dysentery in the causation of ascites from the data collected from the post-mortem records of the King George Hospital, Vizagapatam.

Investigation.

In all cases of ascites the condition of the peritoneum, visceral and parietal, and the appearances of the organs were specially noted. The intestines were examined carefully for evidences of active or healed ulceration, pigmentation or scar-

ring. Any ulcer or suspicious scar, which might have been noticed, was subjected to histological examination. The macroscopic appearances of liver and spleen, were noted and pieces were removed for microscopic examination. Pieces of other viscera also were examined microscopically and the diagnosis was arrived at only after complete examination.

In 454 post-mortem examinations conducted in the Medical College Hospital (King George Hospital), Vizagapatam, from July 1925 to the end of February 1932, there were 98 cases (21·6 per cent.) of ascites. The causes of ascites in these cases arrived at after macroscopic and microscopic examination are tabulated in Table I.

TABLE I.

Post-mortem Statistics of Ascites (98 Cases).

Serial No.	Cause of Ascites.	Number of Cases.	Percentage
1.	Extreme Anæmia ...	6	6·1
2.	Kidney Inefficiency ...	7	7·1
3.	Decompensation of Heart ...	40	40·8
4.	Cirrhosis of Liver ...	32	32·7
	(a) Associated with carcinoma of liver ...	3	
	(*b*) Associated with Hydatid Cyst ...	1	
	(*c*) Portal cirrhosis ...	18	
	(*d*) Syphilitic cirrhosis of the liver ...	4	
	(*e*) Infantile biliary cirrhosis	1	
	(*f*) Hypertrophic biliary cirrhosis	2	
	(*g*) Associated with Banti's disease	3	
5.	Tubercular Peritonitis ...	6	6·1
6.	Septic Peritonitis ...	4	4·1
7.	Sub-acute Toxic Cirrhosis (MALLORY)	3	3·1

Thus, 40·8 per cent. of cases of ascites were associated with decompensation of the heart and 32·7 per cent. with cirrhosis of liver. In 6·1 per cent., it was due to extreme anæmia, with fluid in all serous cavities and ankylostomes in the intestines; in 7·1 per cent., the ascites was only a localised manifestation of the general anasarca, due to kidney inefficiency; 6·1 per cent. were due to acute miliary tuberculosis of the peritoneum and 4·1 per cent. to septic peritonitis after operative interference; in 3·1 per cent. the ascites was associated with diffuse destruction of the parenchyma of the liver (sub-acute toxic cirrhosis of MALLORY?) The exact nature of the production of ascites in these cases is not understood and no other cause could be found to account for the ascites. There was a slight jaundice in all these cases and in one there were many petechial hæmorrhages in the skin and over the chest and abdomen. In none of the above were there any evidences of active or old bacillary dysenteric ulceration of the large intestines. Generalised thickening of the peritoneum was found only in 9 cases (11 per cent.) of ascites. Table II shows the cause of ascites in these cases with thickened peritoneum.

TABLE II.

Post-mortem Statistics of Ascites, Associated with Generalised Thickening of the Peritoneum (9 Cases).

Serial No.	Cause of Ascites.	Number of Cases.	Percentage.
1.	Cirrhosis of Liver ...	5	55·7
2.	Chronic Interstitial Nephritis	1	11·1
3.	Extreme Anæmia ...	1	11·1
4.	Acute Miliary Tuberculosis of the Peritoneum ...	1	11·1

Thus, in 5 cases thickening of the peritoneum was associated with portal cirrhosis of the liver. No evidence of dysentery, recent or old, could be found in them and there was no thickening of the intestines. Microscopic examination confirmed portal cirrhosis to be the cause of ascites. In one case there was generalised thickening of the peritoneum with ascites, associated with chronic interstitial nephritis. The intestines were normal in this case and there were no adhesions.

In another case thickening of the peritoneum was found in a very emaciated and anæmic old man, who died of chronic inanition. All the mucous membranes were very pale, all the internal organs were atrophied, and there was fluid in all the serous cavities. The intestines did not show any evidence of dysenteric ulceration. In the last case thickening of the peritoneum was due to generalised miliary tuberculosis of the peritoneum. The intestines were studded with numerous miliary tubercles, but did not show any ulceration.

Thus, in none of the cases the thickening of the peritoneum was associated with dysenteric ulceration of the intestines.

DISCUSSION.

It will be seen from the data presented above that the majority of the cases of ascites are due to either decompensation of the heart or cirrhosis of the liver. In the cases of cirrhosis of the liver there was no history of excessive drinking of alcohol in any form. That many of the cases of cirrhosis of the liver were of the portal type shows that some toxin, the nature of which is at present obscure, acting on the liver produces changes similar to those seen in alcoholic cirrhosis. Hence, the absence of a history of excessive drinking of alcohol does not exclude the diagnosis of portal cirrhosis of the liver. MALLORY has shown that in sub-acute toxic cirrhosis the changes in the liver may be exactly the same as those seen in LAENNEC'S cirrhosis. We believe that these cases of portal cirrhosis of the liver (without a history of excessive drinking of alcohol) are of the nature of a toxic cirrhosis, the causation of which is not evident at present. The clinical investigation into the causation of cirrhosis of the liver in this part of the country which has been undertaken by the junior author may throw further light on this subject.

Statistics as to the prevalence of bacillary dysentery in these parts are not available. Many patients suffering from bacillary dysentery are admitted every year into the wards of the King George Hospital. The Flexner group of organisms appears to be the common offenders. Out of the 454 post-mortem examinations in only 5 cases (1·1 per cent.) death was due to acute bacillary dysentery and in 4 cases 0·9 per cent.) bacillary dysentery occurred as a terminal event in other chronic diseases. The peritoneum was smooth and shiny in all these cases and there was no ascites. The intestines showed typical bacillary dysenteric ulceration and it was verified by microscopical examination. The very fact that the death in these cases was due to acute bacillary dysentery indicates that the toxæmia was very intense; yet, in none of these severely toxic cases was there any evidence of thickening of the peritoneum, as a result of the passage of the toxins from the ulcerated areas through the bowel wall causing irritation of the peritoneal coat. In bacillary dysenteric ulceration of the intestine there is only a superficial necrosis of the mucous membrane and peritonitis is very rare as compared to amœbic dysentery. Bacillary dysentery is very prevalent in these parts and, if ascites were caused by such a complication as chronic dysenteric peritonitis, we should have seen more cases of this type in the mortuary. But, in none of the cases examined post-mortem was there any definite evidence that the ascites was due to chronic dysenteric peritonitis.

Thickening of the peritoneum, *per se*, need not necessarily be the cause of ascites. Stagnation of fluid in the abdominal cavity in several conditions may injure the delicate lining of the abdominal cavity and cause a chronic thickening of the peritoneum. The association of chronic peritonitis with arterio-sclerosis and granular kidneys was pointed out by HALE-WHITE (1888). In one of the cases referred to above, thickening of the peritoneum and ascites were associated with chronic interstitial nephritis. As the causation of thickening of the peritoneum is so varied, unless a thorough investigation is undertaken and all other causes of ascites are excluded, a diagnosis of chronic dysenteric peritonitis as the cause of ascites is not justified. The peritoneum lining the upper part of the abdomen, especially that lining the under surface of the diaphragm, is stated to be more delicate and to have greater powers of absorption (BUXTON, 1907); hence, the changes are more marked in the upper part of the abdomen, when the peritoneum is injured by stagnation of fluid, sepsis or toxins. Therefore thickening of the peritoneum by itself is no evidence in favour of chronic dysenteric peritonitis producing ascites.

In 2 out of 5 cases dying from acute bacillary dysentery there was slight congestion of the liver. In one case, in which the death was due to chronic bacillary dysentery of 6 months' duration, the liver showed early changes of portal cirrhosis with round cell infiltration around the portal vessels. There was no thickening of the peritoneum and typical bacillary dysenteric ulcers were found in the mucous membrane of the descending and sigmoid colon.

From the above evidences we are of opinion that such a condition of chronic dysenteric peritonitis, resulting in ascites, is not at all common in this part of India; and, in cases in which ascites may sometimes develop as a sequel to chronic dysentery, the causative factor is a secondary cirrhosis of the liver.

SUMMARY AND CONCLUSIONS.

(1) Post-mortem statistics collected from the Medical College Hospital (King George Hospital), Vizagapatam, show that most of the cases of ascites are due to decompensation of heart and cirrhosis of the liver.

(2) Though bacillary dysentery is common in these parts, no case of ascites due to chronic dysenteric peritonitis (MEGAW) was seen post-mortem.

(3) In cases in which thickening of the peritoneum was associated with ascites, the causation was found to be due to factors other than chronic dysenteric peritonitis.

(4) Thickening of the peritoneum, if present, need not always be the cause of ascites but may be its result.

(5) We are of opinion, that, in cases in which ascites may develop as a sequel to chronic dysentery, the causative factor is cirrhosis of the liver and not fibrosis of the peritoneum.*

REFERENCES.

(1) Buxton (1907). *Jour. Med. Res.*, Boston, XVI, 25.

(2) Cunningham, J. (1923). Some observations on dysentery, *Indian Medical Gazette*, LVIII, 358.

(3) Hale-White (1888). *Trans. Clin. Soc.*, London, XXI, 219.

(4) Megaw, J. W. D. (1921). Chronic dysenteric peritonitis, *Indian Medical Gazette*, LVI, 321.

(5) Megaw, J. W. D. and Maitra, G. C. (1924). Chronic dysenteric peritonitis as a probable cause of a common form of ascites in the tropics. *Indian Medical Gazette*, LIX, 224.

(6) Rogers, Sir Leonard (1913). *Dysentery*, 1913.

*Read at the Scientific Section of the VIII All-India Medical Conference held in Calcutta, March, 1932.

Efficacy of Bacteriophage Treatment in Bacillary Dysentery

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So long for the treatment of bacillary dysentery we have had to depend mainly on the specific treatment namely, the sero-therapy. But it is well-known that virulent forms of bacillary dysentery, sometimes, in the form of destructive epidemics, appear amongst children and young adults of big families or institutions where of necessity large number of people meet together. To treat a large number of such people, some with previous history of serum administration, others with family history of asthma and such other contra-indications of sero-therapy, is really a heroic none the less risky, task even for an energetic young capable physician. It is very natural for parents not to agree to treat their wards, who usually are of tender age by injection of serum and this remedy in order to be of maximum effect should be given within 48 hours of the onset of the disease. Usually after the 4th day of the illness serum does not seem to be of much effect in bacillary dysentery.

In out of the way places such as distant villages where physicians are scarce, not to speak of anti-dysentery serum, sero-therapy apparently is impossible to achieve. On the other hand the highly potent dysenteryphage which acts as a specific needs only oral administration, manageable even by the ladies of the house, and is likely to prove a great boon in our oriental countries. Bacteriophage has got the additional advantage of manifesting no reaction or after-effect as is so frequently shown after the injection of serum. Anaphylaxis is also another disadvantage of sero-therapy in cases of dysentery. For economic reasons too, Bacteriophage appears to be preferable. In cases of sub-acute dysentery, which often is the common variety of bacillary infection in the elderly and adults, serum is not of much use, but in these cases bacteriophage has, as appears from some of the cases mentioned below, been of considerable service.

Record of some amongst numerous cases, of interest are given below:

CASE I—J. Madrasi, age 40, Male.

Admitted on the 7th January for the treatment of fever, dysentery with frequent stool mixed with blood and mucus, pain in the abdomen, and tenesmus. He was treated with anti-dysentery serum 20 c.c. There was no fever, slight improvement in the condition of the patient followed. But no apparent change in the character of the stool was noticed. On the sixth day of admission Bacteriophage was administered and only six ampoules were given. Blood and mucus stopped;

well formed stool was seen from the 3rd day of phage administration. The patient was discharged cured on the 21st January.

Case II—Sudhabala, age 50, Female.

Admitted on the 29th January for the treatment of fever, dysentery with blood and mucus; and severe tenesmus.

On admission Anti-dysentery Serum 20 c.c. and Normal Horse Serum 10 c.c. were administered. Blood disappeared after the injection but the offensive character of the stool and its frequency still persisted. On the 5th day of admission dysentery-phage was administered—one ampoule every 3 hours and only 10 ampoules were given. The character of the stool and its nature completely changed and the patient was discharged cured on the 10th February.

Case III—Dr. Mittra, age 50, Male.

On the evening of the 7th February, suddenly became ill, symptoms ushered in with rigor and high fever up to 104°F. with diarrhœa soon followed by sero-sanguinous frequent motions with intense tenesmus. From the next day Bacteriophage was administered, one ampoule every 3 hours and only 10 ampoules were given. Fever subsided, character of the stool changed and the patient passed into the stage of convalescence within 3 or 4 days.

Case IV—Rajamia, age 35, Male.

Admitted on 28th February for the treatment of fever, frequent motions of blood and mucus and tenesmus. Bacteriophage was administered from the 3rd day of admission—one ampoule every 3 hours and 20 ampoules were given. Fever subsided and fæcal nature of the stool appeared from the 3rd day of phage therapy and within 4 to 5 days he was completely cured and was discharged on the 8th March.

Case V—Bhakat Bahadur, age 30, Male.

Admitted on the 26th February for the treatment of high fever, pain in the abdomen, frequent motions of blood and mucus and intense tenesmus. Bacteriophage was administered from the 2nd day of admission, one ampoule every 3 hours and only 10 ampoules were given. The fever subsided, blood and mucus stopped from the 3rd day after administration of the phage. The patient was discharged cured on the 7th March.

Case VI—C's son, age 3 years.

On the 20th February had an attack of high fever with diarrhœa soon followed by motions mixed with blood and mucus. The boy was first treated with Homeopathic medicine for two days. But the condition of the boy gradually became worse. So from the 4th day of onset he was treated with Bacteriophage for 6 days—symptoms gradually subsided and the patient passed into the stage of convalescence.

Case VII—B. Dutt's son, age 1½ year.

On the 15th February had an attack of dysentery with high fever, pain in the abdomen and tenesmus. He was also treated with Homeopathic medicine for 6 days, but there was no improvement in the condition of the child. From the 7th day of onset he was treated with dysentery phage and only 6 ampoules were given altogether, symptoms disappeared from the next day of phage administration and the child rapidly recovered.

Case VIII—Sadhuka's son, age 1 year.

On the 28th February had an attack of fever with incessant fishy smelling stool mixed with blood and mucus. He was treated with Bacteriophage from the very day of onset—all symptoms subsided from the next day and the baby completely recovered within 3 to 4 days' time.

* * * *

In the above recorded cases diagnosis was made by bacteriological examination of the stool and by clinical manifestations also.

Two of the above recorded cases, were only partly relieved by serum treatment, but completely cured by Bacteriophage. Two other cases which were treated without much success by Homeopathy but got fully well through phage therapy. The rest, most of which were acute and rather difficult cases were completely cured by Bacteriophage. It is demonstrable from the above findings that to be of maximum effect Bacteriophage should be used as early in the disease as possible, because the earlier it is given the better is the result. It is also noteworthy that sub-acute cases are very often advantageously treated by Bacteriophage.

Our experience from the treatment of a number of cases with Bacteriophage prompts us to

assert that in any form of diarrhœal trouble in children and young adults, specially if associated with fever, this invaluable but perfectly harmless remedy should be as a routine method given a trial.

Our heartfelt thanks are due to the authorities of The Bengal Immunity Company who kindly supplied us with adequate amount of dysentery phage, prepared in their laboratory, to be tried in our patients. In our opinion they should be congratulated for the great success they have achieved in this line of research.*

*Read at the Scientific Section of the VIII All-India Medical Conference held in Calcutta, March, 1932.

Effects of Vitamin E on the Ovaries of Young Rats

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Evans and Bishop have shown that a diet sufficing to maintain animals in perfect health may still leave them sterile and incapable of reproduction. This essential antisterilitic food factor was named after Evans or simply Vitamin E. To find the effect of this recently introduced food-factor on ovaries, experimental feeding was carried on young rats about a month old in two batches of eight each. The basal diet of all the animals consisted of Indian corn, and wheat gluten, boiled with milk, together with common salt chlorides of calcium and potassium, and raw tomatoes. One batch was getting wheat germ oil (prepared and kindly sent by Messrs. Glaxo and Company) whereas the other batch was getting equal amount of swet-fat in addition.

The metabolism of these animals, as regularly recorded twice every week by the amount of oxygen consumption per hour showed that Batch I had an increase of about 100 c.c. consumption at the end whereas Batch II showed almost a constant metabolic rate all through.

Vaginal smears were taken thrice every week during the period of experimental feeding and out of eight animals on Vitamin E containing diet, five showed œstral changes twice, as noticed by the predominance of epithelial cells in the pre-œstral and non-nucleated keratin plaques at the height of œstral phase followed by reappearance of leucocytes; three other animals exhibited œstrus once only. Of the eight control animals only two showed œstral phenomenon once only, the rest all through exhibited quiescent phase by the presence of leucocytes in the vaginal smear.

The animals were killed after a month and a half and ovaries were taken out. The average weight of the ovaries of first batch was 55 mgm. per 100 gm. of body weight whereas it was 43 mgs. in the case of Batch II.

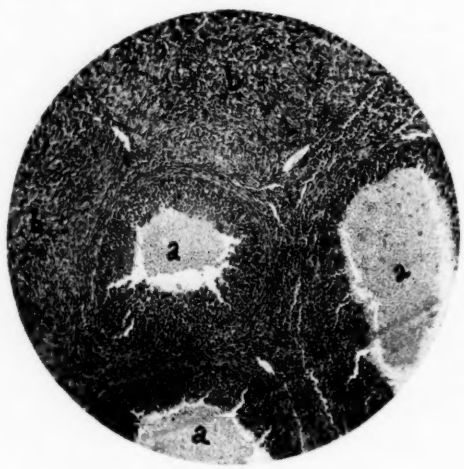

Fig. I.

Section of Ovary of an Animal on Vitamin E Containing Diet.

a—Shows mature Graffian follicles from which ova have already escaped.

b—Shows very big Corpora Lutea.

c—Interstitial cells.

Histology. Ovaries of animals on Vitamin E containing diet showed (1) Irregular outer covering with very small central stroma and still less peripheral stroma, (2) Vesicular follicles are few—progressing follicles, some—mature follicles quite

a good number and follicles from which ovum has escaped are many, almost all situated near the surface and look congested. The folliculi—to consider in more details have irregular theca, distorted and thin membrana granulosa with clear space, faint zona striata—and distorted cumulus oophori—(with no distinct cell of Call and Exner) —and germinal vesicles are absent from many, (3) Corpora lutea quite a good number and some in the process of formation, (4) Blood vessels few.

Fig. II.

Section of Ovary of an Animal on Vitamin E Deficient Diet.

a—Shows very small Graffian follicles.

b—Shows progressing follicles.

c—Further progressing follicles with ova inside them.

d—Space that has developed from the disintegration of cell of Call and Exner—and containing liquor folliculi.

e—A very small Corpus Luteum.

f—Interstitial cells.

g—Blood vessels containing R. B. C.

Those of animals on Vitamin E deficient diet showed structurally—(1) Regular outer covering with small central stroma—but moderately larger amount of peripheral stroma, (2) Vesicular folliculi are few in number—progressing follicles many, mature follicles, very few whereas those from which ova have escaped are conspicuous by their absence. In more details follicular theca are thick and regular, membrana granulosa thick and full with no clear space, zona striata thin and regular, cumulus oophori regular in outline with distinct cell of Call and Exner, germinal vesicle present but indistinct and faintly stained, (3) Corpora lutea—are very few, (4) Blood vessels are too many and specially full of R. B. C. in the central stroma.

Thyroid gland of the first batch exhibited increased activity of the gland as shown by the absence of colloid material, whereas that of the second batch showed a resting phase of the gland full of colloid material.

Conclusion. The weight and structural changes of the ovaries clearly show how Vitamin E is absolutely necessary for the frequent bursting of the Graffian follicle and coming out of ova in young animals, which process is hindered in the absence of the antisterilitic factor in food. Vaginal smears taken frequently during the experimental feeding period, corroborate this.

This finding is further corroborated by increase in the metabolic rate and increased activity on the part of the thyroid glands—as are quite usual in the process of ovulation in the animals that were on Vitamin E containing diet.

Abstract.

By feeding experiments on young female rats it was found that the antisterilitic factor acts upon the ovaries and promotes the maturation of Graffian follicles and ultimately frequent ovulation. This is corroborated by the increase in metabolic rate as also hyperactivity of the thyroid glands—which run concurrently with the phenomenon of ovulation.*

*Read at the Scientific Section of the VIII All-India Medical Conference held in Calcutta, March, 1932.

Outlines of the Principle of Rational Treatment of Cholera and Some Suggestive Laboratory Experiments

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According to D'Herelle and Felix* the pathological manifestations of cholera result through the absorption of some products of disintegration of tissues of the host caused by the enzymes elaborated by the vibrio choleræ residing in the glands in the mucosa of the small intestine. Though there is some controversy as to the exact nature of this toxin, its source and what relative part the products of autolysis of the tissues of the host and the disintegration products of the vibrio or their toxins play in causing the symptoms of cholera, it is admitted almost on all hands that the purging, vomiting and other group of symptoms of cholera are mainly efforts on the part of the toxin-laden system to excrete those deleterious substances absorbed from the small intestine, the principal site of fight between the defensive forces of the host and the causal organisms. The severity of the symptoms also seem to vary relatively according to the fighting forces of the invaded system and the virulence of the organisms. As every one of us is aware that any obstruction of the small intestines is much more rapidly fatal, due to quick absorption of toxins than when the obstruction is situated in the large gut, whence the absorption, specially of the amines and amino-acids, is somewhat slow. In cholera something of the nature of an amine seems to be quickly absorbed from the rapidly absorbing surface of the small intestine and hence the quick and sometime dramatic onset of signs and symptoms in cholera.

Every one knows that virulent cases of cholera often die within a few hours of onset. It is being established gradually that in this disease proper immunological changes in the serum are not noticed immediately after recovery specially in very virulent attacks.† This specially holds good in fatal cases. The guide to this immunity has been the agglutinating power of the serum.

With these words as preliminary, one comes to the consideration of the rationale of the present method of treatment. Though very admirable because of the effects of saving so many lives which were formerly lost, the saline treatment is after all symptomatic. We combat the dehydration, altered viscosity, crystalloid and colloid content of the blood of cholera patients by hypertonic, alkaline or other forms of saline per vein and try to neutralise the toxins in the gut by permanganate of potash kaolin, etc. But how far detoxication is of practical efficacy, those experienced in the treatment of cholera only know. This line of treatment has done much to combat many things but yet much remains to be done. In spite of hypertonic and alkaline saline treatment we lose quite a large number of cases apparently towards recovery, through uræmia. This to my mind is due to incomplete elimination and retention of the toxins and along with them the products of tissue disintegration absorbed through the rapidly absorbing surfaces of the small intestine, in spite of the free purging and vomiting which is the rule in all cases of cholera.

While working in the infectious wards of the Carmichael Medical College Hospitals through the courtesy of Dr. B. C. Roy, the Professor of Medicine, of that College, we began to wonder as to the nature of this symptom complex which for want of a better term is commonly known as post-choleraic uræmia. In our efforts to ascertain whether post-choleraic uræmia was an accidental after-effect or had some definite bearing on the pathogenesis of cholera we came upon very convincing data. Besides circulatory failure, acidosis, ketosis, damage to the kidney cells, altered crystalloid and colloid contents of blood contributing to cause this somewhat fatal complication of cholera, we found an enormously raised non-protein nitrogen content of blood in 66 cholera convalescents. For the details of this finding one can refer to our paper in the Calcutta Medical Journal, July, 1930.

Before one took any serious notice of the high N. P. N. content of blood determined by bio-

*D'Herelle, Felix, Studies upon Asiatic Cholera—Yale J. Biolo and Med. 1: 195, March, 1929.

†System of Bacteriology; Part IV, page 378. Published by the Medical Research Council, 1929.

chemists done in the laboratory, clinically one found that ounce doses of castor oil exhibited regularly morning and evening did cure cases of mild post-choleraic uræmia. But before the high N. P. N. content of cholera cases was actually determined one substituted concentrated solutions of Sodii and Mag. Sulph. orally for the treatment of this complication with definitely better results.

Now-a-days all our modern methods of treatment aim at the removal, if possible, of the underlying cause of the disease rather than combat the symptoms as they arise. In bacillary dysentery, an acute ulcerative infection of the large intestine, with frequent bloody stools and toxæmia we exhibit Sodii Sulph. and Mag. Sulph. orally with gratifying results.

In this infection of the large gut (bacillary dysentery) whence the absorption of toxins is comparatively slow we find it rational to exhibit saline purge but in the cases of cholera, in spite of the high N. P. N. content of blood and such fair percentage of post-choleraic uræmia, the rapid absorption of toxins, the frequent liquid evacuations of cholera, an effort on the part of the body to get rid of the absorbed toxin, scare us so much that we seem to forget and fail, in our hurry and fear, to see to the rational treatment of cholera which, to my mind, should consist in the exhibition of frequent but small doses of concentrated solutions of sodii and magnesium sulphate orally from the very beginning of the disease. This acts purely physically by raising the osmotic tension.

Before the purging and vomiting, enabling us to come to a diagnosis of cholera, start there is considerable amount of toxin already absorbed from the small intestine, over which salts per mouth might not have any action. But as all other channels of excretion except the intestinal tract are inactive we should try to make the maximum use of this canal and that is only possible by preventing any absorption from the small intestine by raised osmotic tension in the intestines through the sulphates mentioned above.

In the early stages of the disease when sulphates are exhibited per mouth, the ex-osmotic tension of the intestinal contents being raised toxins cannot be absorbed and are excreted in the stools. Later on when the loss of fluids and Nacl is very great the parched dehydrated body eagerly absorbs the last drop of toxin laden fluid from the intestines and collapse is hastened. In later stages of collapse when intravenous saline injection restores circulatory failure some amount of toxin is absorbed which was rendered impossible due to the collapse; all these can be very ably prevented by sulphates with a raised osmotic tension in the lumen of the small intestine.

It has been objected to that in cholera there is already much dehydration and exhibition of saline purges will dehydrate it further. But the answer, which has been corroborated by actual experience on cases, is that even when we do not exhibit saline purges the body through its natural process of excretion of toxins pass into the collapsed stage through vomiting, purging and consequent loss of fluid. By sulphates we are just trying to assist nature in her normal process of exeretion and elimination. It appears, as has already been pointed out, that before immunity is established in the system, cholera shows its consequences by the effects of the toxins and hence it appears all the more reasonable to prevent such toxic absorption which often causes death in virulent cases. The dehydration is combated by intravenous saline injection by measuring the specific gravity and other indications of saline treatment too well-known for enumeration.

Though one has not got enough data yet worked on the above principle of treatment yet there is enough evidence based on practical experience to suggest that if from the very beginning of the cholera sodii sulphate and magnesium sulphate treatment is instituted and collapse is combated by proper intravenous saline injection cholera will lose much of its horror.

Having considered the principles so long one would like to outline the imperfectly worked out sulphate treatment. As soon as diagnosed the stomach is washed out by a glass of warm water with a pinch of sodii bicarb. in it which the patient drinks all at a time; the invariable result being vomiting and thus washing out the stomach. Then a powder consisting of fractional doses of hydrarg. subchlor., menthol, chloretone, is alternated with sips of saturated solution of sodii sulphate and magnesii sulphate in the proportion of three to one. If vomiting continues all efforts must be made to make the saline purges retain. The rest

TABLE I.

In each Set of Seven Test Tubes Inoculated with Vibrio Cholerae, Bacilli Shiga & Flexner respectively in 2 c.c. of Media.

No.		1	2	3	4	5	6	7 Control.	Incubated for 3 hours, then inoculated on agar slopes and incubated for 24 hours with the results shown in the next column.
		1 c.c.	1½ c.c.	2 c.c.	2½ c.c.	3 c.c.	3½ c.c.	None added.	
Saturated Solution Mag. Sulph. added.	Vib. Cholerae	Plenty of colonies but discrete.	Fewer than No. 1 but discrete colonies.	About 34 colonies.	1 colony only.	No growth.	No growth.	Plenty and matted together.	Results after 3 hours incubation in contact with Mag. Sulph. in strengths mentioned in Chart. The agar tube results.
		About 200 colonies.	About 100 colonies.	About 6 colonies.	No growth.	No growth.	No growth.	Do.	Results on agar slopes after 6 hours incubation.
Sodii Sulph.		About 300 colonies.	2 colonies only.	7 colonies only.	Do.	Do.	Do.	Do.	Result after 3 hours contact with Sodii Sulph. on agar slopes after 24 hours incubation of the latter.
		About 40 colonies.	No growth.	No growth.	Do.	Do.	Do.	Do.	The above after 6 hours contact.
S.S. Mag. Sulph.	Baci. Flexner	Plenty matted together.	Matted.	Matted.	Plenty.	About 400 colonies.	About 300 colonies.	Do.	3 hours contact with Mag. Sulph. s.s. and agar inoculation as above.
		Do.	Do.	Do.	Do.	Do.	About 200 colonies	Do.	6 hours contact with Mag. Sulph. s.s. and agar inoculation as above.
S.S. Sodii Sulph.		Do.	Do.	Do.	Do.	Do.	Almost no colonies.	Do.	3 hours contact with Sodii Sulph. s.s. and agar inoculation as above.
		Do.	Do.	Do.	About 100 colonies.	About 75 colonies.	About 100 colonies.	Do.	6 hours contact with Sodii Sulph. s.s. and agar inoculation as above.
S.S. Sodii Sulph.	Baci. Shiga	Plenty matted	Plenty.	Discrete colonies.	Discrete.	About 150 colonies.	Not done.	Do.	3 hours contact with Mag. Sulph. s.s. and agar inoculation as above.
		Plenty.	Discrete.	Discrete less numerous.	Plenty.	Discrete but scattered as above.	Not done.	Do.	6 hours contact with Mag. Sulph. s.s. and agar inoculation as above.
S.S. Mag. Sulph.		Plenty.	Plenty.	Plenty.	Discrete colonies.	About 500 colonies.	Discrete and scattered.	Do.	3 hours contact with Sodii Sulph. s.s. and agar inoculation as above.
		Plenty but discrete.	Discrete.	Discrete scattered.	About 300 colonies.	About 100 colonies.	About 50 colonies.	Do.	6 hours contact with Sodii Sulph. s.s. and agar inoculation as above.

TABLE II.

Agglutination Test with Equal Parts of Saturated Solution of Mag. Sulph. and Sodii Sulph.

	Test tubes.	1	2	3	4	5	Control.	
	Solution of Salts added in c.cs.	+1 c.c.	+2 c.c.	+3 c.c.	+4 c.c.	+5 c.c.	Normal Saline 3 c.c.	Agglutination.
Vib. Choleræ		±	±	+±	++	+±	None.	Result after 1 hour contact
		+±	+±	++	+++	++	Do.	,, ,, 2 hours ,,
		+++	+++	++±	+++	++−	Do.	,, ,, 3 hours ,,
		Plenty.	Plenty but discrete.	Discrete and few.	Scanty.	Scanty.	Plenty and matted.	Cultural result on agar slopes in loopfuls after 2 hours contact 24 hours incubation.
		Slight.	A few colonies.	None.	None.	None.	Do.	Cultural result 24 hours contact.
Baci. Shigæ		−	−	−	±	+	None.	Agglutination 1 hour.
		−	±	+	+±	∓ Hazy.	None.	,, 2 hours.
		−	++	++	++	+−	None.	,, 3 hours.
		Plenty.	Plenty	Plenty.	Discrete but plenty.	Discrete.	Plenty and matted.	Cultural result after 2 hours contact.
								Cultural result after 24 hours contact not seen.
Baci. Flexner		−	−	±	±	∓ Hazy.	None.	Agglutination 1 hour.
		−	−	±	+±	+−±	None.	,, 2 hours.
		−	−	++	++	+±	None.	,, 3 hours.
		Plenty.	Plenty.	Plenty.	Plenty.	Plenty.	Plenty and matted.	Cultural test after 3 hours contact.

of the treatment is as usual, except that some amount of saline purges must always be present in the lumen of the small intestine so long as the patient is not completely free from the symptoms of excretion and so long as the tongue remains coated. Sometimes sodii bicarbonate or potassium citrate is added to the salts in mild cases with the expectation that small amounts might be absorbed though quite unlikely. The above method is only the basis of the treatment, individual cases requiring modifications which I have not been able to work out yet.

In order to ascertain what action sulphates might have on vibrio choleræ, bacilli Shiga and Flexner *in vitro* one did the following experiments:

The first set of experiments were carried out in numbered ordinary slides. With loopfuls of 24 hours peptone water culture of cholera organisms were mixed separately drops of normal saline and sulphate solutions of 5 per cent., 10 per cent., 20 per cent. respectively and covered by cover slips and seen under the high power of the microscope. The first slide with normal saline showed the organism quite normal and intact and the 5 per cent. sulphate solution almost as the first one. In the 10 and 20 per cent. solutions the vibrio choleræ looked disintegrated, swollen up and grouped in clusters. This result though somewhat interesting was not taken very seriously because the salt action on the vibrio as seen in clean slides was likely to be modified considerably in the presence of other proteins.

In the second experiment 2 c.cs. of cholera inoculated broth was taken in numbered test tubes, to this was added 1 to 2 c.cs. of sulphate solution of 5 to 20 per cent. and incubated for 24 hours. One loopful from these incubated sets of tubes were inoculated on agar tubes to find out whether the sulphates had any retarding effect on the growth of the cholera vibrio. But after 24 hours' incubation all the agar tubes showed growth of cholera vibrio. There was taken more concentrated sulphate solution—(saturated) and its effect on a peptone water culture, a medium poor in protein and alkaline serum broth culture, a somewhat protein rich culture medium for cholera was seen. When half and half peptone water culture and saturated sulphate solutions were mixed and incubated there was no growth possible, whereas under identical conditions the liquid alkaline serum broth showed that some cholera organisms were still living as showed by growth on agar slopes from loopfuls.

Then one tried to make a comparative study of the viability of the sulphates separately on vibrio choleræ and bacilli Shiga and Flexner.

Six sets of seven test tubes each containing 2 c.cs. of suitable liquid medium inoculated with Shiga Flexner and cholera were taken. They were properly numbered and to six of them were added 1 c.c., 1½ c.c., 2 c.c., 2½ c.c., 3 c.c., 3½ c.c. of the solutions of sulphates of magnesium and sodium separately and incubated for 3 hours and loopfuls taken and inoculated on agar slopes; then again after 6 hours' incubation the same process was repeated. The 7th tube was kept as the control. It was found out that the vibrio choleræ died in three hours contact in 3 c.cs. of sulphate mixture whereas the Shiga and Flexner remained unaffected. Sodii sulphate was more effective in killing the vibrio than mag. sulph. solution. For details please see Table No. 1.

Lastly, one tried the agglutinating effects of sulphates in saturated solution on the organisms of Shiga, Flexner and cholera with the results shown in Table No. II, where + means slight, ++ means moderate and +++ means complete agglutination. Cultural tests were also done from these tubes where agglutination was going on after 2 hours and 24 hours. It is superfluous to add that the above cultural experiments were done under sterile precautions.

These experiments only show that vibrio cholera is much more easily affected by the salt action of sulphates than Shiga and Flexner group of organisms. In the infections of the large gut by these latter organisms, in the absence of post-dysenteric uræmia, and other positive indication of eliminative methods of treatment as shown in every step of the pathogenesis of cholera, we exhibit salines but not in cases of cholera where it is positively indicated for reasons stated above.

But I must confess that in my own advocacy of sulphate treatment I did not expect any specific effect except only physical effect based on simple laws of osmosis. The above laboratory experiments were carried out after good results were obtained by our other methods of treatment

combined with sulphates. But none the less the above experiments are significant and suggestive.

Lastly my warm thanks are due to the authorities of the Bengal Immunity Company who kindly allowed me all facilities to carry out the above experiments in their laboratory.*

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Diagnosis in Acute Abdomen

By B. V. Mulay, M.S. (Bombay).

The abdomen is a closed box containing a number of vital organs. Serious conditions either inflammatory or non-inflammatory arising acutely in any one of them gives rise to a common symptom-complex, which is adequately expressed as Acute Abdomen. Each affected organ also produces signs and symptoms peculiar to itself which help in arriving at a correct diagnosis of the case but in spite of the advances recently made in abdominal surgery, a correct diagnosis in acute abdomen is at times found to be a hopeless affair.

Abdominal surgery in this country is still in a backward state, owing to the ignorance of the people. It is a rare thing for a patient with acute abdomen to seek medical aid immediately after the advent of the illness and by the time the case comes into the hands of the practitioner or the surgeon, the patient often is in the firm grip of toxæmia and shock, which are generally brought on earlier and enhanced by firm massage of the abdomen, done by the ignorant village healer, who is found everywhere ever ready to oblige his credulous victim. Massage has its soothing usefulness in cases of pure colics of the intestines and such masseurs have obtained their reputation by the relief, massage gives in these cases. It is a matter of common experience to find even external strangulated hernias massaged and kneaded enough to produce hæmorrhagic extravasations and rupture of the bowel wall. The damage produced by massage in cases of acute appendicitis or perforation of the bowel may be left to imagination.

Thus the practitioner and a surgeon start with a disadvantage in case of an acute abdomen and the surgeon is placed on the horns of a dilemma. He sees sure death if the case is left alone and if he undertakes to operate where mortality is very high he runs the risk of having his reputation damaged by fatal issues after operation and is more afraid of the effect of discredit surgery comes to, in the eyes of the public. All such effects are worsened as you move further from the Presidency towns in the moffusil. In such grave conditions, when the patient and relatives are explained the nature of disease and the nature of the operation and a chance of ultimate success you do not often find patients willing for operative treatment. They prefer to die without attempting any defence.

I have often mused seriously over the question of a surgeon's duty in explaining to the patients the chances of recovery in an operation for acute abdomen and have weighed in comparison and contrast the conditions in which my enviable friend the physician works. An operation for intestinal obstruction, after all, is the logical and reasonable treatment, whether it is successful or not. The public in general often holds the surgeon responsible for the fatality; to avoid the blame coming from such responsibility, the surgeon has to explain all chances in detail to the patient. A physician is never held responsible for fatality, say, in a case of lobar pneumonia and he never even dreams of explaining to the patient the chances of recovery with his medical treatment. The oftener he stabs with his injecting needle, the more he rises in the estimation of his patient, if he survives, and little less in the eyes of relatives if he croaks.

Approximately you have to reject 50 per cent. cases of acute abdomen, owing to the certain impending fatality; 20 per cent. or more decline operative interference, owing to uncertainty of

success and the remaining 25 per cent. agree with the surgeon's view. Mortality is high and owing to the small number of such operations that are generally undertaken, the surgeon obtains his experience and efficiency in operative technic very slowly. Besides, owing to the social conditions, it is impossible to obtain consent for a post-mortem examination and that channel of knowledge which is very helpful in diagnosis is also closed. Little wonder that acute abdomen which is a knotty question even in advanced countries is still not a very bright spot in Indian Surgery. Conditions are, however, changing for the better and I am sure, in the next decade, a more rapid progress will be made in this branch.

Acute Abdomen can be divided into two classes, *viz.*, benign, where operative treatment is not needed and malignant requiring operative interference for cure.

Benign includes the following diseases:

(1) Intestinal colic,
(2) Biliary colic,
(3) Renal colic,
(4) Intestinal obstruction by round worms or hard fæces,
(5) Injury to the abdominal muscles,
(6) Sprain of the mesentery.

The outstanding features of this class of diseases are pain, shock of varying intensity but not continuously increasing, absence of continuous rigidity of the abdominal muscles, except in cases of injury to abdominal muscles and sprain of the mesentery.

(1) *Intestinal Colic.* It is due to acute indigestion and the pain is due to unsustaining irregular peristalsis of the intestinal musculature; the abdominal wall becomes momentarily firm only during the period of colic and a sense of distinct relief is produced by a pressure on or gentle massage of the abdominal muscles. Vomiting occurs only in the beginning and depends on the presence of food in the stomach and symptoms subside with the free passage of a copious motion and gas.

(2) *Biliary Colic.* This is attended with shock of varying degree, pain, shooting from the costal margin at tenth rib to the umbilicus, and attended with vomiting. Pain is due to the strong peristalsis of the muscular coat of the biliary ducts. The situation of the pain in the right upper quadrant of the abdomen, the direction in which it shoots from the costal margin through the umbilicus and the sequence of paroxysm of pain followed by complete relief are diagnostic symptoms. Later on, appearance of jaundice and presence of bile in the urine and diminution of pigment in fæces will confirm the diagnosis. Pain in this case stops suddenly with the passage of bile calculus into the duodenum.

(3) *Renal Colic.* This is caused by arrest of a gravel in the ureter and the symptoms caused by it are similar to those of biliary colic with such difference as is peculiar to the organ in which the colic appears, *viz.*, kidney, paroxysm of pain followed by quietude, shooting from the lumbar region downwards to the testicle of the same side, to the tip of the penis, and in severe cases shooting along the middle of thigh and rarely refer to the heel of the same side. The pain is attended by a shock of varying degrees and by anuria, massage and vomitation giving temporary relief. Acute pain stops suddenly with the passage of the gravel into the bladder, a dull aching remaining for some time in the lumber region.

(4) *Intestinal Obstruction by Occlusion of the Lumen.* This is caused in two different ways at two different sites in the intestinal canal, *viz.*, accumulation of hard scybala in the large bowel and by collection of round worms in the small bowels. Symptoms of obstruction caused by these are colic of a severe type, coprostasis, occasional vomiting without the presence of bile or fæcal matter, absence of shock but presence of exhaustion in neglected late stages, absence of rigidity of abdominal wall and occasional passage of flatus.

Such cases, when they come under observation in the early stages, are set right easily but when they are neglected and seek medical aid very late, they are difficult to make out owing to the exhaustion brought on in late stages. An enema given by the ward-boys or nurses is generally fruitless and this appears to complete the evidence in favour of acute abdomen. Examination per rectum reveals the nature of the cause of obstruction in the case of impacted scybala and after a few of them are removed by the finger, the rest can be completely evacuated by enema.

In the case of round worms a correct diagnosis is very difficult, and when it comes correct it is a matter of experience. The colics in this case are not so severe as in the case of acute obstruction and a history of past attacks can very often be elicited from the patient. It is strange that such symptoms are mostly found in adults and this probably is due to the fact that the children are oftener treated with santonin than adults. When such persons harbour a big army of stalwart round worms for a long time the symptoms simulate chronic obstruction due to tubercular disease of the intestine entering into the final stage of acute obstruction. The patient in such a case is found bed-ridden with a large doughy abdomen, palpation and percussion reveal dilated intestinal coils in one portion and a firmer mass in another region on the abdomen giving a false impression of adherent intestinal coils found in tubercular disease of the intestine and mesenteric glands. In case the mass happens to occupy the right iliac fossa, the picture is complete for diagnosis of obstruction due to tubercle disease of the cæcum end of ileum and mesenteric glands. Vomiting, however, is absent and a little flatus passes now and again. It is difficult with the presence of exhaustion, to diagnose correctly and it is quite excusable if abdomen is opened in a case of this type. In a case of this nature which recently came to me for consultation, the lady had been suffering from occasional attacks of intestinal colics for six months and the abdomen showed the characteristics of tubercular obstruction at the ileo-cœcal region, complete obstruction seemed imminent and abdomen section appeared to be the only alternative. A further period of observation came as a most astounding surprise. The next day a round worm obtained an exit through an opening unnatural for it, *viz.*, the mouth, but it did not attract much attention, as it is usual for such an occurrence in cases of great commotion and irritability in the intestinal tract, produced by different causes which include amongst others, enteric fever, cholera, dysentery, biliary vomiting and intestinal obstruction. Two other worms sought the day light next day through the mouth which attracted attention and a dose of santonin cleared hundreds of worms making abdomen soft like a bag of silk in four days.

(5) *Injury to the Abdominal Muscles.* A man receives a severe blow into the abdomen, becomes collapsed, vomits once or twice, suffers from severe pains in the abdomen, the muscles of the abdomen wall become firm and he seeks medical aid in this state. Is it a case of only injury of the muscles or is it a case of rupture of the bowel or a solid organ? The two lesions require two kinds of treatment differing from each other as the two poles. In the case of a severe injury to the abdominal muscles, pure and simple, the initial shock, which is produced by the impact is of short duration and is not continued longer as in the case of shock produced by a damage to the abdominal organ, hollow or solid. Pulse which is rapid in the beginning soon becomes quiet and approaches normal, the rigidity of the abdominal muscles which is general in the beginning soon becomes localised, unlike the rigidity of the muscles in case of rupture of the bowel where it rapidly increases into the formation of a hard board and there is no sign of accumulation of blood in the hypochondriac and lumbar regions.

(6) *Sprain of the Mesentery of the Small Intestine.* In including this item as a causative factor in the classification of benign acute abdomen, I recognize that I am introducing a subject for criticism and controversy. But as I have given some thought to this question on the experience of a few cases, I hope you will give a patient consideration to this item, before you accept my conclusions or reject them.

I should frankly tell you at the outset that the symptoms of the severe sprain of the mesentery simulate those of appendicitis. Out of the few cases I have seen, I shall describe to you in brief the case of a young girl of 14 years in a well-to-do family, unmarried, robust, habitually constipated and without any previous attack of pain suggesting appendicitis. She lifted a large iron basket full of corn in a playful mood, started pain in the right iliac fossa, which gradually became worse until after 36 hours, when I saw her, she was in writhing pains which came as attacks of colic followed by quiet periods, a certain amount of dull pain remaining constant, had vomiting half a dozen times, pulse was ninety, respirations were catchy, had an anxious look, temperature was normal, abdomen slightly tympanitic but the muscular rigidity on the Macburney's point was nearly absent. There was a localised firmness in the abdominal wall but the muscle did not resist the impinging palpating

fingers. Total starvation except water, glycerine enemata, antiflue plastering and aromatic drugs put her all right in a week, during which period temperature never rose above 99°5 except on one day in the later stage, when it was 101° with a soft abdomen, pulse keeping below 90. At the succeeding two menstrual periods she got two attacks of colic of diminishing intensity, lasting for a few hours and relieved by castor oil. Absence of the three classical symptoms of appendicitis, *viz.*, rigidity of the muscles, increased pulse and increased temperature form the diagnostic factors although negative in this trouble of mesenteric sprain.

Malignant Acute Abdomen.

The classical symptoms, which should place the medical man on the right track of diagnosis in cases of malignant acute abdomen are, tenderness, rigidity of the abdominal muscles, recurring effortless vomiting, increasing shock, complete intestinal blockage and signs of concealed hæmorrhage. These signs are not collectively found in every case coming under the category of acute abdomen but one of these which is the hall mark of all conditions, coming under this classification, is increasing shock, which accompanied by any one of the other classical signs should be enough to point the danger signal.

It is better and expedient to classify the causes of this condition according to the nature of the abdominal organs, (1) Obstruction of the intestinal canal, (2) Acute appendicitis, (3) Rupture of a solid organ—liver, spleen or kidney, (4) Rupture of a hollow organ—alimentary canal, gall bladder, urinary bladder, gravid uterus, (5) Thrombosis of mesenteric vein, (6) Acute gangrenous inflammation of the pancreas, (7) Rupture of pathological growths, aneurysm, extra-uterine pregnancy, (8) Acute general peritonitis, (9) Acute paralysis of the intestine, (10) Torsion of pedicles of new growths, (11) Acute extensive pleurisy on both sides.

(1) Before stating the diagnostic signs and symptoms of acute intestinal obstruction I should like to enumerate in brief the ways in which obstruction occurs. Firstly, by occlusion of its lumen by fæcal stone arrested generally in the fixed portions of the canal, secondly, by malignant tumour arising in the wall of the bowel ultimately leading to acute obstruction and, thirdly, by constriction of the intestinal tube by the twisting of a coil resulting in volvulus, by band resulting in kink by impaction in peritoneal fossa resulting in internal hernia. Signs and symptoms are characteristic. There is a sudden pain which continues as colic becoming worst in intensity as time passes, producing in later stages ladder appearance on the abdomen due to the prominent coils of the bowel ranging horizontally across the abdomen. Vomiting is a marked symptom, first watery, then bilious and lastly fæcal occurring without much effort. Coprostasis is complete, not even flatus passing. Abdomen is soft in the early stage, becoming pretty firm during the period of colic, later on becoming tympanitic and bloated when paralysis of the musculature occurs. The abdomen, however, lacks the board-like rigidity of the abdominal wall, which is seen in cases of acute general peritonitis. Shock appears from the very start and its severity depends on the region affected, the lower the obstruction the lesser the rapidity of the development of shock. Vomiting is also less in obstruction of the large bowel. The patient assumes a peculiar expression betraying great anxiety and this expression is peculiar to all types of malignant acute abdomen and is known as facies hippocratica.

(2) *Acute Appendicitis.* Cases in this category which give rise to symptoms of acute abdomen are those in which the appendix is rapidly involved either in perforation or gangrene. Milder types are localised affections of the peritoneum which give rise to local signs and should not be included in the classification of acute abdomen. In cases of perforation or gangrene, the symptoms are exactly similar to those found in rupture or perforation of the bowel, the only special features being greater rigidity over the appendix area and history of probable previous attacks.

(3) *Rupture of a Hollow Organ.* (*a*) Perforation of the stomach is followed by a severe pain and shock, the abdomen becoming stiff in a short while. A period of lull steps in when the patient feels quite comfortable and is followed by more shock, more pain, vomiting and the abdominal wall becomes firm and rigid especially above the umbilicus.

Perforation of the bowel is heralded by rapidly increasing pain, increasing shock and increasing

abdominal rigidity, the muscles becoming hard like bone, the development of which depends on the extent of the peritoneum involved. The pain is constant and not colicky. Vomiting is occasional and not incessant as in cases of obstruction. When tympanitis starts in the last stages, the bloated appearance found in the last stages of obstruction are absent but the rigidity still maintains the board-like hardness of the abdominal wall. Coprostasis is complete, not even flatus passing. Facies hippocratica is present from the very beginning and lasts during the whole course. When enema is attempted the abdominal rigidity does not allow a large quantity of water to be retained which is in contrast with the fairly large enemata retained in the early stages of the intestinal obstruction.

(*b*) In rupture or perforation of gall-bladder there is an acute pain and rigidity of the abdominal muscles more marked in the right upper quadrant of the abdomen. Vomiting is not prominent and coprostasis is absent.

(*c*) Rupture or perforation of the urinary bladder causes severe pain and rigidity of the hypogastrium and if the opening into the peritoneum is large enough no urine passes by the natural way and in case of a small opening, urine voided is mixed with blood.

(4) *Rupture of a Solid Organ.* There are three solid organs in the abdomen which are liable to rupture in injuries of the abdomen. Owing to the nature of the causative factor, the pre-indication in the diagnosis, *viz.*, trauma always exists. Signs of concealed hæmorrhage, rapid pulse, blanching of face and conjunctiva, thirst, set in. Abdominal wall becomes firm and not rigid, due to the pain and when bleeding is intra-peritoneal as in the case of spleen and liver, blood collection in the lumbar region forms a definite dullness which gives a conclusive proof of the nature of damage. In the case of rupture of the kidney, urine is coloured with blood and a collection of blood often remains extra-peritoneal. General rigidity in the abdominal muscles is absent but the side of the abdomen is found to be firm, the dull mass is situated more on the back than on the front in the flank. Certain inhibitory reflex disturbance does involve the bowels but the positive results of an enema dispel the suspicion of intestinal obstruction.

(5) ***Thrombosis of the Superior Mesenteric Vein.*** This is a fatal disease and the diagnosis is always difficult. There is pain all over the abdomen, firmness in the abdominal wall which, however, yields to the palpating fingers, unlike the rigid abdomen in perforation and peritonitis. Paralysis of the bowels gradually sets in preceded by loose motions containing blood.

(6) *Acute Gangrenous Inflammation of the Pancreas.* This is a rare and fatal disease accompanied by severe pain, shock, fever, rigidity of the abdominal wall and vomiting. Coprostasis is not complete, patient becomes rapidly toxæmic, muttering delirium sets in, tongue becomes dry, urine shows albumin and pulse and heart are rapidly affected by a failure of vasomotor system.

(7) *Rupture of Physiological and Pathological Growths.* (*a*) Rupture of gravid uterus occurs in injuries of adbominal walls or in obstructed labour. Sudden excruciating pain without the characteristic of the uterine labour pain, with rigidity of the abdominal wall, hæmorrhagic pulse and abnormal position of a fœtal limb palpable in the free peritoneal cavity should correctly indicate the dire contingency.

(*b*) An aneurysm of an abdominal blood vessel. When an aneurysm of the abdominal aorta or its branch ruptures into a hollow viscus, signs of acute abdomen are absent. But when it opens into the peritoneal cavity there is a sudden severe pain at the time of bursting of the aneurysm which is followed by a certain firmness in the abdominal wall, pulse becomes hæmorrhagic and soon a collection of blood is revealed by palpation, in the abdomen.

(*c*) Rupture of extra uterine gestation. This is heralded by acute pain in the hypogastrium in a woman with a history of menopause generally of a duration of two to four months. Rigidity in the abdominal wall below the umbilicus supervenes and the patient becomes blanched in face with a rapid pulse indicating concealed bleeding.

(8) *Acute General Peritonitis* occurs as a result of effusion from the viscera, in perforation of the stomach, intestine, gall-bladder, urinary bladder, the appendix, septic pyosalpinx and a sub-peritoneal abscess bursting into the peritoneal cavity or by infection through blood in pneumococcal and septic extra abdominal affections. The one classical sign and a guiding factor in diagnosis in this affection is, rigidity of the abdominal wall which literally

becomes a hard board, and the rigidity increases with the touch of the palpating fingers. It is absolutely safe to diagnose acute general peritonitis, on the strength of this sign alone. Constant severe pain, occasional vomiting, early and rapidly developing shock, increase of temperature in gradually developing cases and sub-normal temperature in sudden and extensive affections, sweating, appearance of facies hippocratica, complete coprostasis, tympanitis, lack of retaining capacity for enemata, rapid fall in vasomotor tone form an unmistakable picture of acute general peritonitis.

(9) *Acute Paralysis of the Intestine*, known as acute ileus, is a condition caused by a sudden paralysis of the muscle of the intestine, resulting in stoppage of peristalsis and loss of tone in the intestinal wall. The phenomenon is peculiar and results in rapidly developing tympanitis without rigidity of the abdominal wall. There is hardly any vomiting, motions and flatus are stopped and vasomotor system gradually fails.

(10) *Torsion of the Pedicle of a New Growth*, for instance an ovarian tumour, gives rise to severe pain and firmness in the hypogastrium. There is a certain amount of shock. Vomiting is not a marked symptom, motion and flatus can be passed, especially after an enema, a definite solid mass localised in the abdomen is felt occupying the pelvis and there is a history of the presence of a tumour. In later stages when the tumour swells up by inflammation and gangrene starts, tympanitis, vomiting and rigidity in the abdominal walls appear, although rigidity is never like hard board as found in general peritonitis.

(11) *Acute Pleurisy*, the last item in this classification appears as a paradox—a disease of the chest, giving rise to signs and symptoms of malignant acute abdomen. I shall give you a graphic yet actual description of a typical case of this class, instead of giving an abstract account of the signs and symptoms.

A boy of ten years was sent to me, by a medical man forty miles away from Sholapur, apparently for an operation to relieve intestinal obstruction. He was suffering for 36 hours before he reached Sholapur. He had a severe pain in the whole of the abdomen; his abdominal wall was very firm, but not hard like a board, he had vomiting about six times since he fell ill, his temperature was 100°, facies hippocratica had set in, he was sweating profusely, could pass neither motion nor flatus, enemata given before he arrived produced no results, his pulse proved a break down of vasomotor nerves, abdomen had started becoming tympanitic. The case neither looked straight away either acute general peritonitis in the absence of board-like rigidity of abdominal wall, nor acute intestinal obstruction in the absence of incessant effortless vomiting. Auscultation of the chest settled the question. He had extensive pleurisy on both sides of the chest. He was not able to retain a sufficient quantity of enema and was rapidly heading towards his end. An injection of pituitrin was given and before he breathed his last a copious motion was passed.*

*Read at the Scientific Section of the VIII All-India Medical Conference held in Calcutta, March, 1932.

Applied Pharmacology

Being the address of the President of the Pharmacology Sub-Section of the Scientific Section, VIII All-India Medical Conference, Calcutta, 1932.

By KARTICK CHANDRA BOSE, M.B., Calcutta.

I thank you, dear brethren, to elect me as your Chairman of the Section on Pharmacology.

Pharmacology is a vast subject and really embraces the practical application of the medical science in the alleviation or cure of diseases.

All three of the great kingdoms of Nature, animal, vegetable and mineral, yield their curative substances, and to the list of drugs from natural sources, modern science has added wholly new products, which never were on land or sea, until brought into existence by the creative art of the chemist.

How Drugs Came into Use.

Human progress generally takes place in three stages: the *adoptive*, the *adaptive* and the *creative;* and in detailing the development of a remedial agent the above classification might be applied.

First we adopt the materials that nature has provided for our use, next we seek to modify and purify the crude product, *i.e.*, to adapt it for certain purposes; and finally, with the aid of synthetic chemistry, we seek to duplicate the natural product, to produce new derivatives of it and to synthesize new compounds after the chemical structure of the parent product has been determined.

As illustration of the processes of adoption, adaptation and creation, let me quote the life-history of some well-known drugs.

The natives of Kaffa, a province in Abyssinia, discovered the value of coffee as a stimulant and used it appropriately in dissipating drowsiness during prolonged religious services.

This was a case of adoption of a natural product. In modern times, pharmacists and chemists sought to concentrate the extract and to separate the specific substance responsible for the stimulating action and in the year 1820, the compound was isolated and named Caffeine.

As a result, the product was available in concentrated form, new modes of administration became possible and it was combined with other drugs. This was the adaptive stage of progress.

In 1895 Caffeine was reproduced synthetically in the chemist's laboratory and it was found possible to prepare synthetically certain related products (known as purines) which are of even greater interest as active therapeutic agents. In this series belongs diuretin and agurin class of synthetic drugs.

The inhabitants of South America used to obtain stimulation by chewing the leaves of the coca plant and were able to avoid the pangs of hunger, owing, as we know to-day, to the paralysis of the terminals of the gustatory nerves. This is again a case of adoption.

In 1860, chemists isolated the alkaloid Cocaine and pharmacologists found out its use in the production of local anæsthesia and in this way the natural drug was adapted to new uses.

Finally in 1902, creative genius of the chemists reproduced the natural alkaloid in the laboratory and from 1908 purely synthetic local anæsthetics were made available, which have no counterpart among natural products.

Considerable number of successful remedial agents, which now have scientific basis, were originally discovered and adopted by laymen.

For example, cod liver oil with its vitamin contents; Cinchona adapted by Europeans after the Countess Chinchon was relieved of her fever by the drug offered by her servant; Ipecac which was disclosed by a quack after the dauphin of France had been cured of dysentery, and the king had offered a thousand pieces of gold for the secret formula; Digitalis, an old woman's remedy for dropsy, but to-day recognised as our most valuable heart tonic; Belladonna, so called because the Spanish Bella Donna herself found it appropriate for whitening the skin and for dilatation of the pupil of the eyes.

The Chinese drug *Ma Huang* (Horse's wind) had been used in China for the treatment of asthmatic conditions for 5000 years, but only in 1924, it was placed upon a scientific basis; now its constituent known as Ephedrine, has proved to be a medical sensation and new uses have recently been found for it.

We as general practitioners hailed the use of the new alkaloid Ephedrine and began to use it largely in cases of asthma or bronchial trouble till the untoward symptoms began to be complained of by the patients using them.

We came to a fix whether to continue prescribing this remedy Ephedrine Hydrochlor.

When Lt.-Col. Chopra's researches on the action of Pseudo Ephedrine were published in *the Indian Medical Gazette*, 1929, we came to know that the drug has got another alkaloid Pseudo Ephedrine which is milder and counteracts the unpleasant action of pure Ephedrine, when the whole plant is used; so we find nature has provided a corrective within.

Thus from the adoptive, adaptive and curative stage, we have to regress to the whole drug, *i.e.*, to the adaptive stage.

Since studying the Indian indigenous drugs for publication in the Pharmacopœia Indica, I came across several instances which will be narrated before you by my young friend Dr. N. K. Bose on his discourse on the use of indigenous drugs.

On the use of the whole drug, *Lodhra*, known as *Lodha* (*Symplocus Racemosa*) the history is very interesting as reported in a paper, *Observation on the action and use of Symplocus Recemosa*, which was taken as read at the Indigenous Medicine Section, All-India Medical Conference held in Calcutta in 1928.

In that paper, I described the use of the drug by various observers and most of them did declare that the result was poorest or negative, when administered in the form of alcoholic Liq. Ext. (1 in 1) (3rd Report of the Indigenous Drugs Committee).

This drug contains an extractive of the nature of glucoside which becomes hydrolysed and physiologically inactive if kept for sometime and those observations after the use of Liq. Extract can now be explained.

If the whole drug is used in the powder form, either as it is or made into a tablet, the effect is marvellous in cases of menorrhagia or metrorrhagia.

This is another instance, that we have to recede back to obtain the full therapeutic effect of the drug.

Drugs are obtained from the vegetable, animal and mineral kingdoms or are synthesized, that is artificially prepared and with the development of organic chemistry, we have learned how to produce many substances artificially by chemical synthesis.

More important was the production of entirely new substances not known to exist in nature. Many of these latter produce strikingly valuable medicinal effects and have, therefore, added greatly to our ability to defeat disease and to preserve life.

With investigation there developed a fairly comprehensive and accurate knowledge of those products which are the results of a "living process." Then our attention has been turned to the living body itself and the products produced as well as to a study of the processes and reactions, which take place during the life of the organism. This phase of study of the living processes, within the body, belongs to the domain of biological chemistry and explains how the body automatically maintains its health and protects itself against diseases and accidents, thereby prolonging life.

From this study man has learned how to promote growth through a balanced diet and proper conditions of living. He has learned how to immunize the body against many of the infectious and dangerous diseases, such as small pox, tetanus, diphtheria and typhoid fever and how to overcome the poison of snake-bite. These are accomplished through the use of anti-toxins, toxins, serums and vaccines artificially produced or biosynthesized in another living body. The preparation and standardisation before use of such biological products come under the domain of pharmacology.

The ductless glands of animals slaughtered for food were, until recently, discarded as waste materials. Now all these glands, thyroid, pancreas, pituitary and the suprarenals are carefully separated and sold to manufacturers of pharmaceutical products to be extracted and prepared in a form suitable for administration to the body in the treatment of disease. To-day the slaughter house is going to have a new significance; it is not only the source of meat supply, but is also the source of some of our important drugs.

Pepsin, obtained from the stomach of animals, has been used in the treatment of digestive disorder. The pancreas gives us the dried juice as pancreatin, which is useful in starchy indigestions and extract made from that organ gives us insulin, which is useful in cases of hyperglycæmia. Liver has come to the forefront, being useful in the treatment of pernicious anæmia.

Biological chemistry has enabled us to study the functions and influences of the glands, the digestion and absorption of food. The processes, by which the animal body discharges its waste matter and the marvellous methods by which it immunizes itself against disease, have given us a great store house of information and entirely new group of drugs.

Chemo-Therapy.

The common battle which all nations are waging against man's greatest enemy, "disease" requires the mobilisation of all available resources of science.

In this effort, the relatively new science of chemo-therapy has been most valuable. Chemotherapy may be defined as the application of specific chemical substances for the destruction of parasites. To be useful, such an agent must be much less harmful to the host than to the invad-

ing organism. Medical treatment to-day depends in a large part upon the availability of a considerable number of such products, most of them of synthetic origin.

One of the most insidious scourges of the human race is syphilis. For centuries syphilis took its toll of death and disablement.

Just before the turn of the present century, Paul Ehrlich, the father of modern chemo-therapy, began a study of dyes and other substances for the eradication of spirochetes, the organisms which produce syphilis, and trypanosomes which cause African sleeping sickness and other diseases. To overcome such diseases, it was necessary to find drugs which would selectively attach themselves to and destroy or inactivate the organisms producing them. This was the origin of the brilliant researches in synthetic chemistry that led to the discovery of Salvarsan, the announcement of which in 1910 startled and encouraged the world.

Starting with Atoxyl, an organic compound of arsenic, which had been studied but not previously used in syphilis, Ehrlich and his associates prepared and studied a very wide variety of arsenical compounds. Finally, they were able to announce the discovery of Salvarsan, which was number 606 of the series they were investigating. It was the hope of Ehrlich to find a drug so effective against the invading organism and so harmless to the cells of the body that a single dose would eradicate the disease. At first he seemed to have succeeded, but the spirochetes of syphilis are elusive and difficult to overcome so it was soon found that long-continued treatment was necessary for cure.

Chemo-Therapy Index.

The ideal and aim of chemo-therapy is to evolve compounds with a minimum of organotropism and a maximum of parasitotropism or disinfectant activity.

Toxicity or organotropic tests are conducted by administering a compound to lower animals according to the body weight and expressing the results in terms of the smallest amounts causing immediate death or death in 24 hours (*dosis lethalis*) or according to the largest amounts per body weight, borne with or without symptoms and histological changes for an arbitrary period, like 10 days and designated as the maximal tolerated dose.

The parasitotropic, curative or disinfectant effects of a compound are then determined by administering it to animals infected with the chosen parasite and the results expressed in terms of the smallest amounts per kilogram of body weight capable of sterilising completely the blood and the fixed tissues. This may be designated as the minimal curative dose (*dosis curative*) and the whole expressed in the form of an equation as follows:

$$\frac{\text{Maximal tolerated dose per kilo.}}{\text{Minimal curative dose per kilo.}} = \text{Chemo-therapeutic Index.}$$

The determination of chemo-therapeutic index has come under the domain of pharmacology.

Are Drugs Made Uniform?

Mother Nature seems to delight in variety. No two stones along the roadside are of the same size or chemical composition. No two eggs are precisely the same in size, shape or weight. It is known that no two human beings have ever lived on this earth who were precisely identical in appearance, especially when height, weight, texture and colour of skin and hair, and finger prints are compared. This same variation is found in the composition of our crude drugs. Leaves, stems, barks, wood and roots which are employed in medicine as sources of remedies for the treatment of various diseases, show the same wide variations among different specimens of the same kind of material, different portions of the same specimen and even among different leaves grown on the same plant.

Variety as the spice of life may be highly desirable, but in drugs, it must be guarded against. The various steps involved in the process of making drugs and medicines uniform may be grouped under four different headings:

(1) To determine the nature and character of active constituents of the crude drugs.

(2) To develop chemical or pharmacological methods for quantitative and qualitative determination of the active ingredient.

(3) To establish a common unit of description and a definite standard for the material.

(4) To apply the standard as a measure of the activity of the products found on the market.

With the interest of public health in mind and a definite organised programme for operation, the workers with drugs should assure the public of uniform and dependable drugs.

Uniformity Through Chemistry.

The concomitant of civilization is complexity of living. One of the compensatory movements of this scheme of living is that toward uniformity and standardization in every phase of life.

Civilised people sleep in standardized beds, eat standardized foods, drink standardized milk, live in standardized houses, ride on standardized cars, etc.

No science has contributed more to the progress of standardization than has chemistry by analytical methods. Chemistry has not only made its contribution to the standardization of the common utilitarian things of life, but it is playing a most important role in the standardisation of our drugs.

Chemical examination of crude drugs have shown that it is usually possible to obtain and to isolate one or more active compounds from each drug. With the development of chemical methods of assay or testing, *i.e.*, of determining the amounts of particular alkaloids, glucosides, or other specific products which are present in the drug, it has become possible to simplify the use of medicine in the treatment of disease.

When studies in pharmacological laboratories and at the bedside show that a particular alkaloid or other active principle occurring in a drug has the medicinal action of the crude drug, it is often possible to replace the latter by the active principle.

The chief value of the isolation of active principles from crude drugs lies in the possibility of uniformity in administration to the sick.

For the relief of pain, morphia is preferable to opium, since the desired quantity can be determined and administered more readily and accurately. A small quantity of strychnine acts promptly as a stimulant, whereas crude nux vomica, from which strychnine is obtained, would be uncertain and very slow in producing the desired effects.

The medicinal action of a crude drug results from the combined effects of all its active ingredients. The same drug may contain active principles which have opposing effects. Under certain conditions crude drugs may be preferred, because of the combined or resultant action and these are to be determined after actual use among patients. When a drug contains an active principle of definite chemical composition, its standardisation may be accomplished by chemical means.

Physiological Standards.

In the latter part of the last century, workers with drugs became actively interested in the idea of testing drugs upon animals, not only to ascertain the character of the drug action upon the living organism, but also to determine the extent of activity and thus arrive at the strength of the drug.

The first application of the standardisation method on living beings was done by Dr. Squibb, for testing the activity of aconite root upon the human tongue. He determined the value of different preparations of aconite root by finding that particular dilution which just caused perceptible tingling after 10 or 15 minutes.

Dr. E. M. Houghton and his associates devoted their time and skill to the development of satisfactory physiological assays (biological assays) for some important drugs as digitalis, strophanthus and squill—the so-called heart-tonic drugs. The method devised by this pioneer investigator, which depends upon the action of the drug when injected into frogs, is still in use.

Whether assays are made by chemical or by physiological methods, one discovers that the material supplied by nature is extremely variable.

Uniformity of chemical response is completely dependent upon uniformity of materials available for clinical use.

The second step in making drugs uniform is the development of a method for the determination of bedside activity.

The third step in making drugs uniform is the fixation of a definite standard for comparison.

The fourth step in the process of making drugs uniform is the enforcement of standards as will be promulgated in the pharmacopœia of the land.

As papers on the Pharmacopœia will be read by our colleagues, I conclude here.

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Editorial Comments

From reports appearing in the daily press we learn that SIR SAMUEL HOARE, speaking at the annual I. M. S. dinner in London, has given that Service a pledge that under the new constitution their rights and obligations will be safeguarded. The Director-General, I. M. S. who was present appears to have been well pleased and we doubt not that the rank and file are likewise encouraged. SIR SAMUEL HOARE was not in the least stinted in the praise of the Service, its tradition and achievements and took the opportunity of pointing to the presence at the dinner of several distinguished Indian members of the I. M. S. The dinner must have been a happy affair and the guests must have departed with feelings of distinct encouragement and optimism. We do not grudge them whatever gratification they may have got out of SIR SAMUEL HOARE'S remarks or the praise which he so generously lavished on them, but what we ask is whether the I.M.S. tradition or its achievements, however impressive, constitute any reason for the perpetuation of a system of monopoly in India, which, apart from being inordinately expensive, has been responsible for the admittedly slow rate of progress of medical education among a highly intelligent people and also for the absence of opportunities for scientific and research studies amongst the progressively expanding medical profession of India.

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What precisely SIR SAMUEL HOARE meant by safeguarding the rights and obligations of the I. M. S. is not clear from the press reports so far received of his speech. Was he referring to the terms of their service, remuneration, pensions and allowances, or did he mean to convey something more, as would appear from his remark that "they would see that India would not be deprived of the services of a great organization like the Indian Medical Service"? In this connection, it is well to recall the report of the Services Sub-Committee of the Round Table Conference, wherein is stated: "Subject to paragraph 1, the Sub-Committee are of opinion that in future there should be no civil branch of the I. M. S.; and that no civil appointments either under the Government of India or the Provincial Government should in future be listed as being reserved for Europeans as such." Paragraph 1 sets forth that "Inasmuch as the Government of India Act and the rules made thereunder by the Secretary of State in Council guarantee certain rights and safeguards to members of the Services, due provision should be made in the new constitution for the maintenance of those rights and safeguards for all persons who have been appointed before the new constitution comes into force." In short, these statements go to show that the intention is to safeguard the existing rights guaranteed to the I.M.S. by the Secretary of State and to debar Europeans *as such* from civil medical posts in future. But did SIR SAMUEL HOARE have the same intention in mind?

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Why we ask this question is that the same Round Table Conference report recommends that the civil medical services should be recruited through the Public Services Commission, who, in the case of the Central Services, are to be appointed by the Governor-General and not be responsible to the Central Legislature. There is a further recommendation that "the Governments and Public Service Commissions in India should bear in mind the requirements of the Army and the British officials in India and take steps to recruit a fair and adequate number of European doctors to their respective Civil Medical Services, and should be prepared to pay such salaries as would bring about this result." This may all seem perfectly innocuous, but with a Secretary of State determined not to deprive India "of the services of a great organization like the Indian Medical Service," what is not possible with a Public Service Commission controlled by the Governor-General and out of the control of the Legislature? It is also specifically recommended in the Round Table Conference report, though it is characterized as unworkable by LORD ZETLAND and SIR EDGAR WOOD, that "an agreement might

be reached between the Central Government and the Provincial Governments whereby the latter in selecting their European doctors might grant a preference to those members of the I. M. S., who have performed a period of service with the Army." These considerations all evoke a great deal of suspicion in regargd to the underlying intention of SIR SAMUEL HOARE'S remarks. Does SIR SAMUEL HOARE mean to suggest that in spite of all the protective measures devised by the Round Table Conference a way will always be found of maintaining a large element of the I.M.S. in the civil medical services?

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In this connection, it would not be out of place to refer to the Indian Medical Council Bill. This bill is intended to form a Council not only to control standards of medical education in India but also to maintain a register of medical practitioners and accord recognition to foreign medical degrees on a basis of reciprocity. One of those with whom it may be impossible to establish reciprocal relations in the matter of recognition of foreign degrees is the British General Medical Council. If reciprocal relations with that Council are not established, then presumably the non-recognition of British medical degrees would preclude the appointment of I. M. S. men in civil medical posts in India. That may be one reason why Government appears so anxious to frame the constitution of the Indian Medical Council in such a way as to give it into the control of the I. M. S. and Governor-General; that would ensure the recognition of British medical degrees.

Medical News and Notes

[Items of news and notes of general interest to the profession for incorporation in this section from the members of the profession will be greatly appreciated—EDITOR]

Decrease in Ultra-Violet Rays. It is stated in a recent issue of *The Manchester Guardian* that according to DR. EDISON PETTIT, astronomer of Mount Wilson Observatory, sun-bathers of the present time have to expose themselves in the sun a third longer to get the same healthful results as six or eight years ago, as the sun is sending down only about two-thirds the amount of rays it did then. "Just as radio reception apparently improves as the sun spots decrease in a cycle, so the ultra-violet radiation seemingly falls off. We are within about two years of the turn in the sun-spot cycle, when, if our assumptions are correct the ultra-violet rays will begin to increase."

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Professor's Great Adventure. Professor THOMAS SANFORD, well-known for his discoveries in the realms of surgery, has suffered all his life from hæmophilia. He is sixty now, in spite of the prophecy of his doctors that he could not hope to live beyond 30. He constantly asserts that hæmophilia is not incurable and for this purpose he is now undergoing treatment whereby all the blood in his body will be drained away and new blood—taken from students of his university—circulated. Further developments will be awaited with interest by the medical profession all over the world.

Synthetic Vitamin C. MR. OTTAR RYGH, the Norwegian scientist claims that he has found a method for producing synthetic Vitamin C, from oranges, after a series of experiments. "As a starting point for my experiments I choose the juice of oranges" said MR. RYGH, in his lecture before the Academy of Science at Oslo. "The juice is one of the strongest anti-scorbutic principles known. The juice was pressed out, centrifuged and steamed carefully in vacuum in a low temperature, never above +25 C°, until it fell to about one-sixth of the original volume. As is the case with juice from oranges, the juice became pale from small quantities of lipoid oil. This oil was removed by shaking with pure ether. As oranges contain Vitamin A it was reasonable to conclude that these A Vitamins followed the oil into the ether. This supposition proved to be correct when trials were made with rats, but as one could expect, the oil proved to be without effect on scurvy.

"After the treatment the orange juice was water-clear and contained no elements which could be extracted by ether. To the juice was now added lixivium of nitron (without admitting oxygen) until it gave a very weak alkaline reaction in litmus and was anew treated with ether. The result was a yellow oil mixed with some crystals, an oil which experiment showed was strongly anti-scrobutic."

He thus got not less than 600 grammes of crystaline matter from ten litres of juice from unripe oranges. This being purified in the usual way and chemically analysed, was found to be a well-known product, the non-poisonous alkaloid narcotine. Further experiments proved that the narcotine disappeared when the fruit became ripe and old. Pure narcotine itself has no anti-scorbutic effect. It is a fact that while unripe oranges contain only small quantities of vitamin C the oranges become more and more rich in that vitamin the more they ripen. This led to connect the disappearance of narcotine with the creation of Vitamin C and it was experimentally proved that this narcotine was pro-vitamin of the Vitamin C, that is, the material from which the Vitamin C is produced in vegetation. Further work with the narcotine resulted in the production of the three fonol groups, of which the o-diffonol was proved by experiment to be effective against scurvy, a dose of 20 millionth part of a gram. being administered per day.

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Calcutta Corporation Grants to Hospitals. A sum of Rs. 3,83,000 and odd has been recommended by the Calcutta Corporation for payment as recurring grants to various hospitals and dispensaries in the City for 1931-32.

These include (1) a further sum of Rs. 10,000 to the Jadabpur Tuberculosis Hospital, the only hospital for treatment of tuberculosis in Bengal.

(2) A sum of Rs. 14,000 and odd for the Nurses' Institute with the recommendation that the Institute should henceforth undertake training of twelve Indian nurses instead of six.

As regards capital grant, a sum of Rs. 50,000 was sanctioned for Calcutta Medical Institute immediately, the rest of the recommendations of the Health Committee being kept in abeyance in view of financial stringency.

The Corporation also granted permission to the Honorary Secretary of the Calcutta Medical Institute to raise a loan of Rs. 1,25,000 by mortgaging the buildings of its hospital which has been built mainly from grants from the Corporation.

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New Hospital for Alirajpur (Bombay). His Highness the Rajah of Alirajpur laid the foundation stone of a hospital with accommodation for 56 in-patients on 30th March last. His Highness has contributed Rs. 1,01,000 towards the cost of the building and its equipment and has promised an annual donation of Rs. 12,500. Other subscribers include the Thakore Saheb of Kathiwar who has founded three beds, the Rajkumar who has given a donation of Rs. 40,239 and promised Rs. 12,100 per annum.

The hospital will cater for the needs of the inhabitants of nearly 3,000 square miles of territory in Alirajpur and its neighbouring States. Provision is being made for the equipment of departments dealing with ophthalmology, dentistry, X-rays and massage. In addition to the two fine operating theatres there will be special words for maternity cases and for children. The total cost including equipment, is estimated at about Rs. 1,75,000.

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Scheme of Tuberculosis Hospitals for Madras Abandoned. The *Hindu* of Madras is responsible for the following item of news: The proposed construction of a tuberculosis hospital for Madras has now definitely receded to the background. The choice of a site was always difficult and all efforts in the past at agreement between the Government and the Corporation were fruitless. The present financial stringency has further complicated matters and it is not likely that the question will be revived until better times return again.

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Three New Hospitals for Mysore. His Highness the Yuvarajh of Mysore has recently opened two new hospitals and laid the foundation of a third at Chickmagalur in Kadur District.

Of these the Mallegowda Hospital with accommodation for 24 patients is to cost Rs. 1.5 lakhs. A sum of Rs. 84,000 was contributed by Mr. Chandre Gowda, a leading planter of Chickmagalur, to the Hospital. The second one is an ophthalmic hospital with twelve beds, costing about Rs. 31,000. Sowear Krishniah Chetty of Chickmagalur, has contributed Rs. 20,000 towards the cost of this.

Mr. Nagappa Chetty, another leading citizen of Chickmagalur, has endowed a sum of Rs. 40,000 towards the estimated cost of Rs. 73,000 for a hospital for women and children.

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Claim of Delhi Doctors for Honorary Positions in Hospitals. Referring to the successful work done at the Delhi Health Centre for Men by volunteers from the members of Delhi Medical Association, Dr. J. K. SEN, the President of the Association, in course of his Presidential address said:

"The private practitioners can run a charitable institution without help and guidance from the officials. We should now ask for voluntary work in the hospitals. We should be appointed Honorary Surgeons and Physicians to the hospitals and some beds should be allotted to us. This practice is in vogue in all large cities. I don't see why the Imperial City will be an exception. The private practitioner would be glad to undertake honorary

work in the hospitals if only the authorities would consent to it. I further suggest that the private practitioners would be also willing to run an entire hospital as is being done in one of the hospitals at Madras. I think we can do more useful work in the hospitals than in municipalities if we get seats there or in the Delhi University Court."

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U. P. Medical Council Election. Dr. I. N. Saxena, L.M.P., Medical Practitioner, and Joint Provincial Secretary, U. P. Provincial Branch, Fatehgarh, is seeking election to U. P. Medical Council in the newly created second seat reserved for private practitioners of the L. M. P. group only.

In supporting his candidature Dr. Kunj Behari Lall Varma, L.M.P., a member of the U. P. Medical Council and Provincial Secretary, U. P. Provincial Branch of the All-India Medical Licentiates' Association, writes: Our representation in the Council would be very meagre, *i.e.*, 3 out of 15 members, the 12 members being all medical graduates. In the existing Council of 14 members, 10 are officials and only 4 private practitioners. The official votes go according to the wish of the head of the medical department as has happened in every meeting and was markedly demonstrated in connection with the All-India Medical Council Bill when the officials looked as if in open conspiracy to exclude medical licentiates from the purview of the bill. We should not, therefore, *commit the error of electing a Government servant* as he dare not act against Inspector-General's will, much less one ambitious for higher honours and lift in Government service. At the same time the gentleman whom we elect must possess a record of continuous but selfless service to the class and he should also be free from party spirit or clique-making, he must have a good knowledge of English, a good handwriting as he will have at times to give his amendments during the course of discussion at the spur of the moment in meetings, a fairly good speaker and a writer of correct English. The Council takes disciplinary action on complaints received and our members who form a huge majority in private practice but are only microscopically represented on the Council are adversely effected. To continue a determined struggle for our very existence against such odds, we require an independent man who should be strong, courageous, tactful and a person devoid of selfish interest.

Case Note

A CASE OF MEDIASTINAL TUMOUR.

By Jogendra Nath Maitra, M.Sc., M.B., D.P.H., D.T.M.,

Hony. Demonstrator, Medical College, Calcutta.

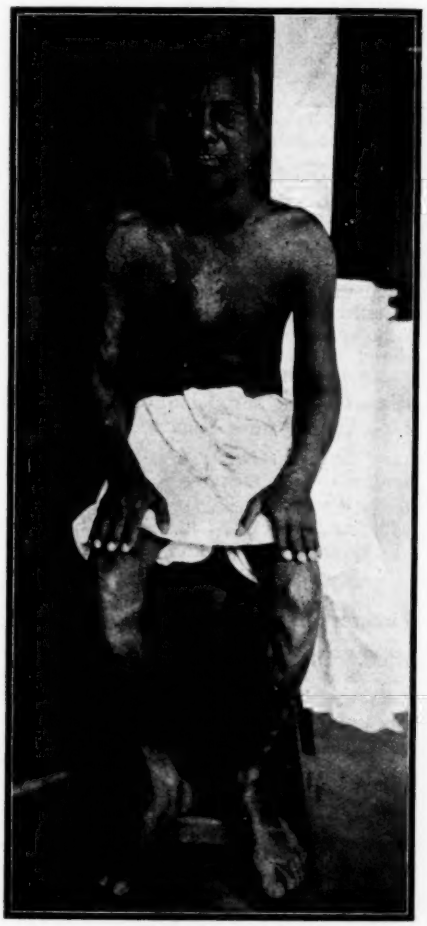
Family History:—Mr. N. K. B., aged about 60 years, always resided at Madra (Faridpur). He is a homœopath and denies any history of treponema infection. His wife was very healthy and died of Cholera 4 years back, leaving 6 healthy children. She lost 5 or 6 children, all in childhood, two of them died at the 3rd month.

Previous History:—Patient had never any illness of any severity till 6 months back, when he had an attack of high fever which persisted for a few days.

Present Illness:—Since the attack of the high fever he got a severe attack of cough and this is still persisting. For the last 3 months he has been observing heaviness in the chest, back, head and in the extremities. He could not sleep for over a month and has got orthopnœa. There was also dysphagia.

Symptoms:—All symptoms of intrathoracic pressure suggested a mediastinal tumour leading to compression of organs. Dyspnœa was earliest observed. This was probably due to pressure on the trachea and on the recurrent laryngeal nerves. Partly this is cardiac. Cough was severe to begin with and paroxysmal, but it was never due wholly to pressure on the recurrent laryngeal as it was not of the brazen quality as noted in cases of aneurysm. Voice is affected partially. He had 3 or 4 hæmoptysis about 2½ months back. There is great dysphagia.

Physical Signs:—On inspection from a distance one never misses the great engorgement of veins on head, neck, chest, back and in the upper extremities due to collateral circulation specially of the superficial mammary and epigastric veins. There is very well marked clubbing of the fingers and a little bulging of the sternum, a little towards the left side; there is no sign of erosion of the sternal bone. There is no sign of pulsation through the chest wall.



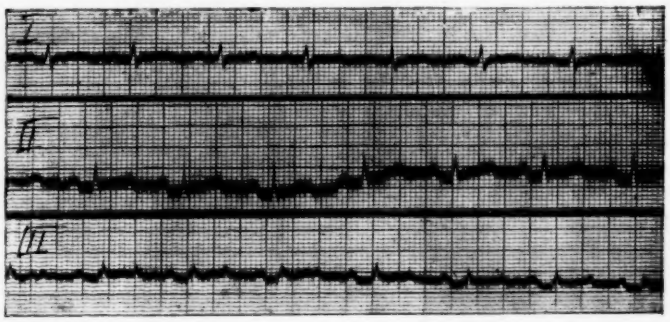
On palpation the fremitus was absent against the sternum up to the neck. No pulsation was felt and there was no sign of an aneurysmal sac. On auscultation no sound was heard over the dull area, and heart area showed no abnormality. There was inaudible respiratory murmur over the dull area. Vocal resonance was also absent. There was no sign of pleural effusion. There were secondary growths on either side of the neck.

Diagnosis:—The difficulty of differentiating it from aneurysm has not been so much felt in this case. Cyanosis, venous engorgement and signs of collateral circulation are more marked in the case. The time element is worth considering. These urgent signs have developed recently and the whole period does not exceed six months. It has been

said that if a case has persisted for more than 18 months the disease is probably aneurysm. Further, there was no diastolic shock, no tracheal tugging, no pulsation of any description to suggest aneurysm.

X-ray picture decides the tumour to be a growth. The skiagram shows a circumscribed dense shadow invading into the lung substance with a convex outer margin. The convex border of

the shadow is irregular in outline and not clean cut. The outline of the heart can be distinguished from that of the tumour. The screen examination showed no expansile pulsation. Electrocardiographic study shows that the heart has not been affected. Some myocardial weakness is apparent.



Blood examination showed white blood cells 6,800, red cells 3,400,000, hæmoglobin 70%. Differential count showed polynuclears 75%, small mononuclears 20%, large mononuclears 1%, and eosenophiles 4%. Agglutination tests are negative, Wassermann Reaction and Kahn Test were strongly positive. Urine showed albumen in trace and acetone. Microscope showed plenty of spermatozoa every time.

The rapidity of the growth, in spite of the superadded condition of the possibility of treponema infection, suggests malignancy, lymphosarcoma and lymphadenoma (Hodgkin's disease) may be complicating with the tertiary manifestation if there is any treponema infection. Question of suppurative condition is eliminated by the fact that blood count shows no leucocytosis and polymorphs have not increased.

Prognosis is becoming grave day by day.

Treatment:—Deep X-ray shows no improvement.

Treatment on specific lines by sulfarsenol and benzo-bismuth is being continued. Surgical interference is out of the question.*

*Read at the Scientific Section of the VIII All-India Medical Conference held in Calcutta, March, 1932.

Obituary

DR. SUKHRAJ DAS.

We regret to record with a deep dense of sorrow the sad news of the death, this month, of the late DR. SUKHRAJ DAS, who was a member of the Sialkot Branch of the Indian Medical Association. He was an enthusiastic member and took a keen interest in the affairs of the Indian Medical Assosiation. DR. SUKHRAJ DAS had won for himself a worthy position in the Sialkot District. We extend our sincere condolence to the bereaved relatives.

Association Notes

Poona Branch.

A meeting of the General Committee was held on 24th December, 1931, at 5 p.m. with Khan Bahadur Dr. E. S. Bharucha in the Chair. The following business was transacted:

1. The Secretary announced that the following members were elected unopposed to the Managing Committee:

Khan Bahadur Dr. E. S. Bharucha, Dr. V. C. Gokhale, Dr. R. K. Naidu, Dr. A. K. Nulkar, Dr. (Mrs.) Sitabai Kirtane, Dr. N. G. Vinze, Dr. G. P. Tendulkar, Dr. K. C. Gharpure, Dr. A. R. Sane, Dr. N. L. Ranade, and Dr. V. R. Dhamdhere.

2. The second Annual Report and the audited statement of accounts of the Branch were adopted.

3. The budget, as recommended by the Managing Committee, was discussed and passed.

4. The arrangements proposed by the Managing Committee regarding the reading-room of the Branch were discussed and finally adopted.

5. Dr. Sane explained the position of the laboratory and stated that members did not take advantage of the laboratory to the extent, he had hoped for. He requested members to send as many specimens as possible for examination and assured them that the question of money should not stand in their way, as the branch had decided that on the recommendation of a member specimens may be examined even free.

Dr. Ranade on behalf of all the members assured Dr. Sane that the members appreciated the spirit in which remarks were made but still requested him not to be pessimistic as regards the interest that members were taking.

With a vote of thanks to the retiring Managing Committee the meeting was dissolved.

A meeting of the General Body was held on the 27th of January, 1932, at 5 p.m. in the hall of the Poona Seva Sadan Society with Khan Bahadur Dr. E. S. Bharucha in the Chair.

The following business was transacted:

1. Dr. K. C. Gharpure read a paper on "An unusual case of cirrhosis of the Liver." The paper was highly appreciated.

2. Dr. G. S. Mandalik read notes of a case of "Cerebral Abscess following Otitis Media" and also showed a case of a lady medical student on whom an enucleation of the tonsils was performed.

Jalgaon District Branch.

Annual General Meeting

The Annual General Meeting was held on the 16th February, 1931, when the following business amongst others was transacted:

1. The following office-bearers were appointed for the year 1932:

(1) *President*—Dr. V. L. Nulkar, L.M.S., Jalgaon.

(2) *Vice-President*—Dr. R. V. Mhaskar, B.A., M.B., B.S., Amalner.

(3) *General Secretary*—Dr. G. G. Chandratre, L.C.P. & S., Jalgaon.

(4) *Auditor*—Dr. N. N. Koranne, L.C.P. & S., Yawal.

2. Dr. Nulkar and Mhaskar were elected as delegates to represent the Jalgaon District Branch, at the Annual Conference of the Indian Medical Association to be held at Calcutta.

3. It was resolved that the Government of Bombay be requested through the Collector of the East Khandesh, to exclude all the poor patients, both indoor and outdoor from paying one anna and two annas per day respectively as per Government Resolution, as this practice would prove to be a great hardship to the poor people attending Government Civil Hospital and Dispensaries.

4. The Annual Report and audited accounts as placed before the meeting as well as the budget for the next year by the Secretary were adopted and passed.

Lahore Branch.

A clinical meeting was arranged under the auspices of the above branch of the Indian Medical Association on 4th February, 1932, when Major Amir Chand, I.M.S., Principal of Amritsar Medical School, gave a discourse on "Common Colds in the Nose."

In course of his lecture the learned lecturer observed that the disease is known by many names, but none of them is satisfactory. "Common Cold" is the most popular but most unscientific of all.

The exact causal micro-organism is not definitely known. The usual micro-organism ordinarily found in the nasal discharges during an attack of the disease are normal inhabitants of the nose and upper respiratory passages, though their number may be increased and they may possibly act as "Secondary infections." The true culprit is a filter passer. The incubation period is so short, and the disease spreads so rapidly that it is called 'catching.'

It has a seasonal prevalence and an attack is very commonly attributed to an exposure to chill. Sudden changes in the physical and atmospheric factors tend to have deleterious effect upon the tissue, especially the superficial mucous membrane and sudden exposure to chill would cause local

vaso-constriction and by lowering the vitality of the cells would make them fall an easy prey to the germs of disease.

Local defects in the nose, throat and sinuses also act as pre-disposing factors, although "Common Cold" is distinct from respiratory catarrh found in some constitutional conditions and deficiency diseases such as "Allergy, Anaphylaxis, Vaso-motor Phenomena and Rickets," yet this factor may pre-dispose to it.

The speaker drew the attention of the audience to the difference between Allergy and Anaphylaxis, which are not synonymous, but quite distinct from each other and he thought that the calcium content of the cell of the nasal mucous membrane may have something to do with its special susceptibility to the disease in some cases.

Dealing with the treatment, he thought that vaccine therapy was an utter failure, because the vaccines used are not elaborated from the actual causal agent. The same remarks apply to the treatment with bacteriophage preparations; the true specific biological product may become available after something definite is known about the virus.

Then he described the symptomatic treatment by local applications and by drugs orally and mentioned the important general factors, such as "rest in bed, warmth and suitable diet." Talking about the local application, he condemned the use of antiseptics in effective concentration, as none of those was a "Parasitotropic," laid great stress on the use of medicated steam inhalations, and suggested that when the acute stage was over, local defects in the nose, throat, and sinuses, if any, should be suitably dealt with.

In the end he spoke strongly against the abuse of the "initial purge," and could not see the rationale of administrating purge in the absence of constipation as was generally done as a routine measure.

Drs. Vishwa Nath, Ganesh Lal, Nihal Chand, Sahni and Kaul took part in the discussion that followed.

Dr. Vishwa Nath agreed with the lecturer that vaccine treatment was of very little use.

Dr. Kaul thought that very often the repetition of the attacks was avoided by removing the defects, if any, in the nose or sinuses. Deflection of the septum of the nose was very often one of the main causes of the repetition of the colds.

Bengal Branch.

Ordinary General Meeting

An Ordinary General Meeting of the Bengal Branch of the Indian Medical Association was held at 7 p.m., on the 24th April, 1932, at 67, Dharamtala Street, Calcutta, with Dr. Sundari Mohan Das in the Chair.

Twenty-three members were present.

The following items of business amongst others were transacted:

1. The annual report of the last year for the period from 28th March, 1931 to 31st December, 1931, was read and adopted by the Secretary.

2. The audited accounts for the year ending 31st December, 1931, were placed before the meeting and passed.

3. (*a*) Resolved that the following 15 members be elected to the Executive Committee for the year 1932:—

Sir Nilratan Sircar, Drs. K. S. Ray, R. C. Sen, A. C. Ukil, P. C. Rakshit, Sudhir Kumar Basu, K. C. Chakraborty, Amiya Madhab Mallick, S. C. Sen-Gupta, Harihar Ganguly, D. P. Ghosh, Aghore Nath Ghosh, Bhupati Ranjan Sarkar, P. Nandi, Santiram Chatterji.

(*b*) Resolved that the following 5 members from Mofussil be elected to the Executive Committee for the year 1932:—

Drs. G. K. Ghosh (Ichhapur, 24-Pergs.), J. R. Dhar (Jessore), Sailesh Chandra Bhowmick (Jalpaiguri), Satya Ranjan Ghosh (Faridpur), Dhirendra Nath Ghosh (Dum Dum).

4. The following office-bearers were elected for the year 1932:—

President—

Dr. Sundari Mohan Das.

Vice-Presidents—

As eight names were proposed for five *Vice-Presidenships*, voting was done by ballot and the following five were declared elected as receiving the highest number of votes:—

Drs. B. C. Roy, N. N. Basu, Col. H. Gidney, Rai Bahadur Dr. H. N. Ghosh, Dr. J. N. Bose.

Secretary—

Dr. H. Ghosh.

Assistant Secretaries—

Dr. H. N. Roy,
Dr. Kalikinkar Sen-Gupta.

Treasurer—

Dr. Anil Kumar Chakraborty.

5. The following 10 members were elected to the Central Council for the year 1932, as receiving the highest number of votes:—

Col. H. Gidney, Drs. K. S. Ray, N. N. Basu, R. C. Sen, H. Ghosh, J. N. Bose, A. C. Ukil, S. C. Sen-Gupta, Aghore Nath Ghosh, Rai Bahadur Dr. H. N. Ghosh.

6. Budget for 1932 was adopted.

FIRST SEMINAR MEETING
HELD ON THE 28TH APRIL, 1932.

The first Seminar Meeting of the Bengal Branch of the Indian Medical Association was held on Thursday, the 28th April, 1932, with DR. S. M. DAS in the Chair, when DR. B. C. ROY opened a discussion on "Some modern aspects of Diabetes Mellitus." He said that nervous strain was an important factor in the causation of diabetes mellitus. The primary factor, however, he thought, from a study of chemical reactions of blood in a series of diabetes, was an initial acidosis. The hyperglycæmia in this disease was thus a protective mechanism to combat this acidosis. The treatment of post-anæsthetic acidosis, especially after chloroform anæsthesia, with administration of glucose, was based on this conception. He also pointed out that the sugar which is produced by glycogenolysis of the liver-glycogen and which leads to hyperglycæmia, may be different in biochemical structure and hence is not utilised by the tissues. It has been shown that in a diabetic, experimental injection of glucose will, after a preliminary rise, lead to a diminution of the original blood-sugar level before the injection. DR. ROY explained that the injected glucose was utilised by the tissues, the tissue cry for sugar was abolished, glycogenesis was restored in the liver and thus there was a return to the normal state. He emphasised that the treatment of diabetes mellitus should be aimed at from two directions:—

1. Relief of the tissue-call for sugar.
2. Check of glycogenolysis.

The role of insulin was accessory inasmuch as it rendered the sugar derived from hepatic glycogenolysis assimilable to the tissues. Rest to the pancreatic cell-islets and to the liver was also important. Insulin should be given according to the degree of recovery of pancreatic cell-islets under starvation and restricted diet. Rest to the liver could be given by intravenous injection of glucose.

In conclusion, DR. ROY emphasised the importance of an enquiry into the factors that gave rise to acidosis. All acidotic conditions did not give rise to hyperglycæmia, *e.g.*, in bronchial asthma, there was acidosis but hypoglycæmia. Over-eating and nerve-strain were liable to cause acidosis with hyperglycæmia. In future, attention should be paid more and more to the functions of the liver for the elucidation of many problems of diabetes mellitus.

Discussion.

DR. J. N. DUTT said that nerve-strain was a less important factor in the causation of diabetes mellitus. He cited that as a result of a follow-up of " shell-diabetics " for a period of 16 years, PROF. UMBER and others have shown that diabetes mellitus was due to causes other than nerve-strain.

Regarding the chemical reaction of blood, he maintained that it changes, on exposure to the air. The reaction of the circulating blood does not alter markedly in life time, it changes only a few hours before death. The poisonous effect in diabetes mellitus is due to enolic group rather than to any acidosis of blood.

The lowering of the blood sugar level in diabetics after intravenous injection of glucose was due to stimulation of the pancreatic cell-islets as is shown by lower blood sugar level after the hyperglycæmia by injection of glucose in normal persons. He also referred to the treatment of diabetes mellitus with a high carbohydrate allowance as done by PROF. PORGES and ADLERSBERG of Vienna.

Rai DR. HARI NATH GHOSH Bahadur stressed the importance of nerve-strain in the causation of diabetes mellitus and agreed almost on all points with DR. ROY.

DR. D. R. DHAR thought that the nervous factor in the causation of diabetes mellitus was important. He also suggested that the enolic group might be the causative factor of hyperglycæmia.

DR. J. C. BANERJEA said, " In view of the recent observation of CUSHING regarding the presence of a hypothalamic centre and a diencephalo-hypophyseal tract through the pons controlling hepatic glycogenolysis and adrenal secretion *via* the cervical sympathetic and the splanchnics, we must regard stress and strain of modern life as an important factor in the causation of repeated transient hyperglycæmia which gradually lead to functional inefficiency of pancreatic cell-islets and thus to permanent hyperglycæmia and diabetes mellitus."

He did not agree that ketosis or acidosis played any role whatsoever in the production of hyperglycæmia. There were many acidotic conditions which did not show any alteration of blood-sugar-level from the normal. Acidosis and ketosis were the late results of a diabetic state and should not be confused to be the etiological factors. A study of the P. H. of blood was liable to many experimental errors.

DR. K. S. RAY said that he had observed glycosuria in a few cases of pulmonary tuberculosis during sanocrysin treatment.

DR. H. GHOSH said that diabetes mellitus in Bengal might be due to the excessive carbohydrate diet. Some deficiency of ptyalin secretion might lead to incomplete conversion of the carbohydrate molecules of food into maltose and thus to overwork of the pancreas and subsequent functional derangement. The nervous factor acted in con-

junction with dietetic errors with excess of carbohydrate and lack of physical exercise.

Dr. B. Shaha said that arteriosclerotic conditions might lead to diminished function of the cell-islets.

Dr. K. C. Chaudhuri asked Dr. Roy to explain how children fed with carbohydrate diet with insulin injections grew better than children fed on carbohydrate diet alone. He also asked Dr. Roy how he explained the nerve-strain in the diabetes of children.

Dr. S. C. Sen-Gupta said that diabetes was a disease, primarily due to a disorder of carbohydrate metabolism and secondarily due to a disorder of protein and fat metabolism. He cited experiments in support of his statement.

Dr. B. C. Roy in reply said that no one factor was responsible for upsetting the balance between the acid and the alkaline condition of blood. Repeated nerve-strain resulted in diabetes mellitus. There was probably some such thing as inherent predisposition to diabetes due to " tiredness " of pancreas.

Benares Medical Association.

(Affiliated to the Indian Medical Association)

Abstracts from the 11th Annual Report.

The total number of members at the end of the year was 57 against 55 in the previous year.

Number of meetings held during the year:—

Extra clinical meetings	7
Council meeting	13 & 1 (Boat meeting) = 14
Special Council meeting	1
Emergent Council meeting ...	2
Ordinary meetings	13
Emergent General Meeting ...	1
Annual General meeting	1
Sub-Committee meeting poison License	1
Library Sub-Committee meeting ...	1
Social meetings	2

It is very unfortunate that none of the members read any paper although written and oral representations were made.

The year started with an opening balance of Rs. 1807-2-2. Rs. 798-12-5 was collected during the year and the total expenditure amounted to Rs. 725-10-8, Rs. 18-4-0 had to be written off for non-payment of subscriptions leaving a closing balance of Rs. 1,880-3-11 at the end of the year.

The Library—

Number of books and periodicals issued in 1931 were 76+38 respectively.

Number of books presented:—

18 Medical books and 53 Novels were presented to the library during the year.

Dr. S. Lahiry has presented 16 medical books and 53 novels and Drs. B. K. Banerji and B. C. Sanyal have kindly presented one book each. Number of books now in the library is 230 as against 149 of the previous year.

The K. A. Dispensary—is doing useful work under the silent worker Dr. G. P. Srivastav, M.B.B.S. In all 37 cases were treated at the dispensary as against 48 in the previous year. 9 cases of Filariasis improved somewhat but left treatment without notice. In 28 cases of Kala-Azar, 8 cases were treated with Urea Stibamine. Of these 7 were cured and one left off treatment without notice. 20 cases were treated with Sod. antimony tart. Of these 4 were cured, 4 are practically cured but are still under observation. 10 left treatment without notice. 2 have just begun treatment.

Training for compounders, nurses and midwives.

This year 8 (5 & 3) compounders have passed the final examination. There is a great rush for admission into the compounders class. In the first year class about 40 compounders are receiving training. No nurse nor midwife has passed the final examination as yet. It is regrettable that material for training as nurses are extremely poor. There are 14 nurses who are receiving training. Lately Babu Bhawani Charan Chakravarty, a teacher of the Bengalitola High School, Benares, has been kindly taking classes in Bengali, Hindi and English for the general training of nurses. The best thanks of the Committee are due to him and Drs. S. Lahiry, P. D. Roy, Bireshwar Banerji, G. C. Bagchi, Bholanath, B. K. Banerji, the teachers of the classes and the Board of Examiners for their taking all the trouble and for their sacrifice.

From the beginning of the year the Association have been trying to get a recognition of these compounders, nurses and midwives by the Government. This requires close supervision of all the classes in a regular manner. For, the office of the Association should be located close to the Marwari Hospital which is the training centre and it is also a central place easily accessible to all the office-bearers, teachers, students and nurses. The Association has been entrusted with the work of inspection of Poison Licenses of the Chemists of the District by the Collector.

The 14th International Ophthalmological Congress

I. The XIV International Ophthalmological Congress will take place in Madrid at the beginning of April, 1933. The principal subjects to be discussed at this Congress, are:

(*a*) *Tuberculosis of iris and corpus ciliare.*

Reporters.	Address.	Sub-division of the subject.
Dr. E. V. L. Brown	University of Chicago 950 E, 59th Street, CHICAGO III (U. S. A.)	Modern methods of treatment.
Prof. Dr. J. Igersheimer ...	Brentanostrasse 1, FRANKFORT A MAIN, Germany.	Pathological Anatomy.
Dr. Henri Lagrange	5, Avenue Daniel Lesueur, PARIS, VII, France.	Diagnosis and differential diagnosis.

(*b*) *Detachment of the retina.*

Dr. H. Arruga	Aragon 271, BARCELONE, Spain.	Etiology.
Prof. Dr. G. Ovio	Viale Castro Pretorio 66, ROME, Italy.	Medical treatment.
Prof. Dr. A. Vogt	Ramistrasse 73, ZURICH, Switzerland.	Operative treatment.

Authors of papers connected in any way with one of these two subjects are kindly requested to send these papers to the reporters in question.

II. All communications to the congress shall essentially refer to the above-named two subjects. There will, however, be reserved two or three meetings for free communications, including one demonstration meeting.

The number of lectures shall be limited both with regard to those that correspond with the principal subjects as with regard to free communications. For this reason papers shall have to be in receipt of the Secretary of Spanish National Committee, DR. T. TOYALES, Olazaga 3, Madrid, *before November* 1st, 1932.

In order to secure the best selection from all papers sent in, an international committee of ophthalmologists shall previously test all communications. After that authors of communications shall be informed if their paper may be read or not.

III. With regard to reports, drawn up for the 13th International Ophthalmological Congress on request of the International Ophthalmological Council the complete commission of reporters shall take decisions during the 14th Congress. These decisions shall be communicated to the ophthalmologists individually, to ophthalmological societies and, if necessary, to the governments with a view to practical application.

Hence all ophthalmologists who hitherto failed to make any observations on the conclusions of the above-named reports (to be found in the Proceedings of the 13th Congress, Vol. IV) are earnestly requested to address any observations or comments they should wish to make to the Secretary of the International Ophthalmology Council.

IV. The reporter on the subject "Pathological Anatomy of Tubercular Iridocyclitis," PROF. J. IGERSHEIMER, requests all those who possess special preparations or slides on cases of tubercular iridocyclitis, to forward these to his address for perusal.

V. Oculists who wish to develop their professional knowledge abroad, either by a short visit to a foreign clinic, or in the way of a longer stay as a volunteer, may apply to the Secretary of the International Ophthalmology Council, who will try to find out the situation that will suit them.

VI. In the year 1929, during the 13th International Ophthalmology Congress at Scheveningen, the Council decided to start an ophthalmological library. Most of the ophthalmological

periodicals have already been collected there. The library is established in Leiden. The object is to collect there everything that will be edited in the domain of ophthalmology. Our colleagues are therefore kindly requested to address an offprint or copy of their publications (*viz.*, reviews in periodicals, books, theses, etc.), to the librarian of the International Ophthalmological Library, Dr. J. Kroon, Stationsweg 25, Leiden (Holland). Further particulars on the working method of this library will follow in due course.

On behalf of the International Ophthalmological Council, Secretary—E. Marx, Inrichting Voor Ooglyders, Oostmolenwerf 5, Rotterdam, Holland.

The International Society of Microbiology

(A note on its constitution and present status.)

The International Society of Microbiology was established in 1930 with the object of promoting scientific thought by creating a closer relationship between scientific workers in different countries, and especially of spreading the idea that all its members are united in a common ideal of peace and constant friendship.

The Society is interested in all Microbiological Sciences (Medical, Agricultural, Botanical): Bacteriology, Immunology, Parasitology, Zymology.

An International Congress of Microbiology is held every 3 years. A General Meeting is held at the end of each Congress. The permanent office of the Society is in Brussels.

The Society is directed by a Central International Committee and a permanent Commission. The Central Committee is composed of the members of the Society's Board, of the members of the permanent Commission and the Chairmen of the National Committees.

The members of the International Society are to form, in their respective countries, either a National Committee or Sectional Committees, who in turn elect a National Committee. The National Committees so constituted form a relationship with the Societies of Microbiology existing in these countries and the International Society of Microbiology.

The Board is composed of (1) the Chairman of the International Society, (2) two Vice-Chairmen appointed for 3 years by the Central Committee, and (3) three General Secretaries, one for the German language, one for the English language and one for the French language.

The permanent Commission is composed of (1) the Chairman of the Belgian National Committee, (2) a member elected at the first general meeting who works as its Secretary, (3) a Treasurer, and (4) the Presidents of the last four Congresses. This Committee manages the property of the Society.

The members of the International Society are elected by the office of the Central Committee, after proposal by the National Committees. These proposals are transmitted to one of the three General Secretaries of the Central Committee. Any person who wishes, therefore, to join the International Society of Microbiology *must first address an application to the National Committee* of his country. The National Committee will then make its proposals to the Central Committee. The General Secretaries send a list of the members proposed by the National Committees of the respective countries every year to the members of the Board of the Central Committee who are to ratify the list within a period of 3 months.

After a proposal of the Central Committee, each General Meeting may appoint an Honorary President and Honorary members.

A General Meeting of the Society will be held every 3 years on the occasion of the International Congress organised by the Society, which will take place in the city selected by the preceding General Meeting.

The official languages used in the Congress are English, French and German. The different subjects treated at the Congress are reports, communications and demonstrations.

The President, together with the Central Committee, determines upon the nature and the number of the scientific problems which are treated in the reports and chooses the Rapporteurs. They also decide upon the duration of the Congress, which is ordinarily 5 days.

The communications must treat the subjects decided upon for the reports. Published papers will not be accepted. The writers of reports and communications shall address to the Secretary of the Board of the Congress a resume of these reports and communications. These texts will have to be in the hands of the Secretary of the Board of the Congress 3 months before the opening of the

Congress in case of reports and 2 months in case of communications. The writers of reports and communications are requested not to use any historical or literary introductions and to report only on new work. The time allowed to authors will not exceed 30 minutes for reports, 10 minutes for communications and 5 minutes for discussions. Those taking part in the discussion will have to send to the Secretary a summary of their statements on the day following them.

The first International Congress was held in Paris from 20th—25th July, 1930, under the presidency of PROF. JULES BORDET. The following countries, who had formed national committees in their respective countries, were represented:— Germany, North America, England, Argentine, Austria, Belgium, Brazil, Bulgaria, Chili, China, Denmark, Spain, France, Greece, Holland, Hungary, Italy, Japan, India, Norway, Poland, Portugal, Roumania, Sweden, Switzerland, Czechoslovakia, U. R. S. S., Yugo-slavia.

The 2nd Congress will be held in Berlin in 1933. Geheimer Hofrat Professor Hahn, Director of the Hygiene Institute of the Berlin University, has been elected as the President. The following gentlemen are working as General Secretaries:—

1. Dr. R. Dujarric de la Riviere, of the Pasteur Institute, Paris.
2. Prof. Gildemeister, Reichsgesundheitsamt, Berlin—Dahlem.
3. Dr. Harry Plotz, Pasteur Institute, Paris.

The Treasurer of the Society is Mr. Georges Masson Editeur, 120, Boulevard St. Germain, Paris (VIe).

The General Meeting which took place on the occasion of the first International Congress of Microbiology fixed the entrance fee at 20 gold francs (100 paper francs, 4 dollars or its equivalent in the various currencies). This sum is to be sent to the Treasurer of the Society, MR. GEORGES MASSON, Editor, 120, Boulevard St. Germain, Paris, *but only after receipt of notification* by the Central Committee that the person in question has been nominated a member of the International Society of Microbiology.

The following is a provisional list of subjects selected for discussion at the 2nd International Congress to be held at Berlin in 1933:—

1. Susceptibility to tuberculosis.
2. Tularemia.
3. Spotted fever and related diseases.
4. Significance of tissue cultures for microbiology.
5. The use of carbohydrates as antigens.
6. A subject from the Bio-chemistry of bacteria (to be shortly announced).
7. Helminthic research.
8. Symbiosis for medical men and naturalists).
9. Parasitism among the higher plants.

The present Indian Committee is composed of the following workers:—

President:—Dr. U. N. Brahmachari, M.A., M.D., PH.D., Physician, Medical College Hospitals (retd.), and Director, the Brahmachari Research Institute, Calcutta.

Members:—

1. Col. R. Row, M.D. (Lond.), D.SC. (Lond.), O.B.E., Professor of Pathology, Grant Medical College, Bombay, 27, New Marine Lines, Bombay.
2. Major G. Shanks, M.D., I.M.S., Professor of Pathology, Medical College, Calcutta.
3. Mr. V. Krishnamurti, G.M.V.C., I.V.S., Principal, Madras Veterinary College, "Veda Vilas," Vellala Street., Vepery, Madras.
4. Dr. R. Khanolkar, B.SC., M.D. (Lond.), Professor of Pathology, Seth Gobardhandas Sundardas Medical College, Bombay.
5. Dr. H. Ghosh, M.B., Director, Biological Department, Bengal Chemical & Pharmaceutical Works, Ltd., 15, College Square, Calcutta.
6. Dr. A. C. Ukil, *Secretary*, Professor of Bacteriology, National Medical Institute, and Director, Tuberculosis Research, Indian Research Fund Association, Calcutta.

The following is a list of members who constituted the Society at the time of registration:—

Honorary Presidents.

Dr. E. Roux, Director of the Pasteur Institute, Paris.

Sir Almroth E. Wright, Professor, University of London. a

Honorary Members.

Messrs. Richard Pfeiffer, Baron Shibasaburo Kitasato, William Welch, M. W. Beijerinck, A. Yersin, J. Winogradsky.

Members of the Central Committee.

Prof. Martin Hahn (Germany), Simon Flexner (U. S. A.), J. C. G. Ledingham (England), Alois Bachmann (Argentine), Roland Grassberger (Austria), Jules Bordet (Belgium), Carlos Chagas (Brazil), T. Petroff Bulgaria), R. Kraus (Chili), Wu Lien-Teh (China), Thorwald Madsen (Denmark), D. Francisco Murillo (Spain), W. O. Streng (Finland), Albert Calmette (France), H. Aldershoff (Holland), Hugo Von Preisz (Hungary), U. N. Brahmachari (India), Serafino Belfanti (Italy), T. Kitashiwa (Japan), A. de Besche (Norway), I. J. Kligler (Palestine), Z. Szymanowski (Poland), N. de Bettencourt (Portugal), J. Cantacuzene (Roumania), M. I. C.

Forssmann (Sweden), George Sobernheim (Switzerland), Ivan Houl (Czechoslovakia), J. L. Kritschewski (U. R. S. S.), G. Yoannovitch (Jugoslavia).

Bureau of Central Committee (Second Congress).

1. Geheimerhofrat Prof. M. Hahn, President-elect of 1933 Congress at Berlin.

2 & 3. Vice-Presidents—Geheimrat Prof. Neufeld (Berlin) and Geheimrat Prof. Fulleborn (Hamburg).

4 & 6. General Secretaries:—
Dr. Dujarric de la Riviere, Prof. Gildemeister and Dr. Harry Plotz.

N.B.—*Any further information will be gladly furnished on request by Dr. A. C. Ukil, Secretary, Indian Committee of the International Microbiological Society, 41, Dharamtallah Street, Calcutta.*

Medical Associations, Societies etc.

Medical Societies, Associations, Unions etc. are invited to make use of this Section of the Journal. —EDITOR.

All-India Medical Licentiates' Association.

THE PUNJAB BRANCH.

The following resolutions were passed at the 11th Provincial Conference of the Punjab Branch of the All-India Medical Licentiates' Association held in Amritsar in March last.

Resolution No. 1. This conference views with consternation the endeavour on the part of the framers of the Indian Medical Council Bill to differentiate between higher and lower grades of Medical practitioners in India which is almost certain to operate as a setback to the improvement in the Medical education of the Licentiates and trusts that the Government should see the wisdom of altering the preamble by deleting the recent introduction of the new and vicious principle of differentiation and amending it so as to make the object of the Bill primarily that of controlling the standard of Medical Education with a view to maintain a high standard of professional conduct and rectitude.

Resolution No. 2. This conference puts on record its sense of gratitude to all those eminent medical practitioners and Associations who have supported the claims of the Licentiates to be included in the Indian Medical Register and trusts that their co-operation will result in the amendment of the relevant clauses of the Bill.

Resolution No. 3. This Conference fully endorses the recommendation of the Indian Medical Association in regard to the different provisions of the All-India Medical Council Bill, and particularly (*a*) regarding the preamble of the Bill, so as to not only provide for the maintenance of a register of qualified Medical men, but also to establish a uniform minimum standard of qualification for the whole of India (*b*) regarding the adequate representation of the Licentiates in proportion to their strength on the All-India Medical Council.

Resolution No. 4. This Conference is strongly of opinion that time has come when no medical institution should admit students below I. Sc. standard, all over India, and that in the meanwhile, the previous standard of academic and four years' training in the Medical schools, be regarded as the minimum registerable qualification till such time as is deemed proper.

Bombay Medical Council.

The following are some of the important items decided upon at a meeting of the Bombay Medical Council held on the 22nd February, 1932:

The Council considered a letter from Mr. G. K. Deshpande to the effect that the qualification of M.D. of Berlin University which he possesses may be held to be one entitling the holder to primary registration under the Bombay Medical Act. The Council resolved to obtain further information regarding the course of studies of the M.D. of Berlin University and to postpone consideration of the question pending receipt of such information.

The Council considered an application from the Mysore Government for the recognition of the degree of M.B.B.S., of the Mysore University as a qualification registrable under the Bombay Medical Act, and resolved that steps be taken to move the Bombay Government to add the qualification in question to the schedule of the Act.

The Council considered an application from the Mysore Government for the acceptance of the diploma of L.M.P. of the Mysore Medical School for registration under the Bombay Medical Act, the said school having been merged into the Mysore University. The Council resolved to recommend to the Bombay Government that their previous Notification adding the L.M.P. of the Mysore University to the schedule of the Act be so modified as to include the L.M.P. diploma of the Mysore Medical School.

The following six members were elected by ballot as members of the Executive Committee:—

Sir Nasarvanji Choksy.
Dr. Dinshah M. Gagrat.
Sir Temulji Nariman.
Dr. Rajabally Patel.
Rao Bahadur Captain N. H. Kulkarni.
Dr. Jivraj N. Mehta.

The Burma Medical Council.

The Thirty-third Ordinary Meeting of the above Council was held on the 2nd February, 1932, when the following among others were discussed.

Among others the following papers were read and recorded:

Letter No. 249 S 31 (R.N. 670), dated the 12th December, 1931, from the Secretary to the Government of Burma, Education Department, communicating the appreciation of His Excellency the Governor in Council of action taken by this Council to effect economy.

Letter No. 326 H.H. 31 (1099), dated the 17th December, 1931, from the Secretary to the Government of Burma, Separate Revenue Department, communicating the decision that all matter required by law as bye-laws, etc., to be published in the *Burma Gazette* will be charged for and not inserted gratis as hitherto.

Letters Nos. 120 S 31 (R.N. 362) and 312 S 31 (R.N. 770) dated respectively the 1st October and 13th November, 1931, from the Secretary to the Government of Burma, intimating that no contribution will be made to this Council for the official year 1931-32, and that, subject to the vote of the Legislative Council, the contribution for the year 1932-33 will not exceed Rs. 3,700.

The revision of the estimated expenditure of the Council for the current year under certain heads was considered and it was agreed to reduce the provision of Rs. 1,800 for printing by Rs. 632 and the money so made available to be distributed among the other heads of expenditure.

The appointment of 2 members as Visitors for the professional examinations of the Burma Government Medical School was considered and it was agreed to invite Drs. Daw Saw Sa and Masillamony to again undertake the duties of Visitors for the current year.

Considered the recommendations of the Executive Committee not to print the Annual List of Registered Medical Practitioners for 1931 and it was decided that as the Annual List of Registered Medical Practitioners is required by the Burma Medical Act to be printed, 540 copies of the list corrected up to 31st December, 1931, be struck off and the price per copy be raised to Rs. 2 for cash sale and Rs. 2-8 when sent by post.

It was agreed to print 100 copies of the rules of the Council in pamphlet form at the Government Press at a cost not exceeding Rs. 200.

Madura Medical Association.

The following are some of the important points dealt with in the Fourth Annual Report:—

There were 47 members on the roll including 3 non-residential members.

Activities.—9 General Body meetings and 3 social gatherings were held during the year.

During the Epidemic of Cholera last year, in the town of Madura, the Association volunteered its co-operation and helped the Municipal Health Staff by deputing a dozen Honorary workers for doing inoculation work and other preventive measures. The Association also helped the cause of the Licentiates by convening a special meeting when an important resolution requesting the Government to include the Licentiates in the proposed All-India Medical Council Bill was unanimously passed.

The Association has been able to save more than Rs. 1,200, during the course of the last four years by carefully economising expenditure, and it is proposed to utilize the amount for having a building of its own. As this amount is not sufficient to materialize the scheme, the Secretary is appealing to all the members "especially to those members who are in arrears of subscription to pay up the arrears and help the cause of the Association in all possible ways," so that the object can be attained at an early date.

Pasteur Institute, Coonoor.

The number of patients treated at the Institute during the year was 541, against 607 of the previous year. Advice, but no treatment was given to 170 persons. The number of cases treated at the Institute from 1907 to 1930 was 33,736 and the number of deaths from hydrophobia among them was 377—a mortality rate of 1.11 per cent. The percentage of mortality was much higher in the case of face bites and bites on bare skin than in the case of bites on other parts of the body and through clothing.

As a result of decentralization of treatment adopted by the Institute in 1922, more people were resorting to treatment owing to the fact that it is available nearer their homes instead of their having to come all the way to Coonoor.

The sanction of the Government was obtained to train 50 medical officers at the Institute, in batches of 10 at a time, with the object of posting them to the various treatment centres, but due to breaches on the Nilgiri Railway all the batches could not be trained before the end of the year.

Four new centres were opened at Malapuram, Cannanore, Trichinopoly and Tuticorin.

Current Medical Literature

Complications involving Nervous System in Leukemia.

VIVOLI.

Riv. Di Clin. Med., Jan. 31, 1931.

According to VIVOLI, his study of fifty-three cases of leukæmia showed twenty-five (47%) to be hæmorrhagic out of which only one case (1·8%) was of cerebral and meningeal hæmorrhage, seven of retinal hæmorrhage and two in which the clinical symptoms pointed to hæmorrhage and leukæmic infiltration of the internal ear. There was no case of medullary hæmorrhage or of infiltration or degeneration of the peripheral nerves. He concludes that cerebral and meningeal hæmorrhage, associated with leukæmia is rare and occurs in not more than 2 per cent. of the cases. The age incidence varies from 15 to 30; but in the acute forms, children even a few months old are not exempt. The course is rapid. The hæmorrhage appears suddenly after the manner of a stroke and invariably early in the course of the disease. Retinal hæmorrhage and so-called leukæmic retinitis appear more frequently in myeloid leukæmia (60 to 70 per cent.) than in lymphatic leukæmia (40 per cent.) being associated sometimes with a sudden diminution of visual acuity, or the patient becomes aware of a black spot on his field of vision. Subjective symptoms may, however, be absent but an ophthalmologic examination reveals the real condition. Retinal and cutaneous hæmorrhages present themselves often simultaneously with hæmorrhages of the internal organs, but many times retinal hæmorrhages (and especially leukæmic retinitis) are met with in cases in which no other hæmorrhagic manifestations are discernible. Ringing in the ears, transitory dizziness and often a typical Meniere syndrome, and deafness (often progressive and total) are often the ear complications in leukæmia. Cranial and spinal nerve complications are rare in leukæmia. They occur usually in the form of unilateral or bilateral paresis or paralysis of one or more nerves and are associated with disturbances of sensibility.

S. K. S.

Treatment of Cerebrospinal Syphilis.

NEUSTAEDTER.

Jour. Nervous & Mental Disease, June, 1931.

Malaria therapy was tried by the author in twenty-six cases of cerebro-spinal syphilis. Anti-syphilitic treatment continued when the febrile paroxysms terminated. Three of the patients (or about 11·5 per cent.) died within a year after inoculation. One improved with complete remission six months after treatment but relapsed after a year and died five years after inoculation. Eighteen (about 69·2 per cent.) were improved and remained in good condition. Six (about 23 per cent.) were unimproved. The results demonstrate that the results of malaria therapy depend on the selection of cases.

S. K. S.

Acute Rheumatism following Tonsils.

SHELDON.

Lancet, June 13, 1931.

SHELDON states that initial fever is often a precursor of relapses of acute rheumatic arthritis or carditis. The fever is ascribed to naso-pharyngeal infection which precedes it by one to four weeks. Acetylsalicylic acid constitutes a prophylactic remedy against rheumatic relapses after throat infections. The element of infectiousness in acute rheumatism is said to lie in the preliminary throat infection which may be epidemic in nature.

S. K. S.

Antipneumococcal Serums in Lobar Pneumonia.

ARMSTRONG & JOHNSONN.

B. M. J., May 23, 1931.

Lobar pneumonia due to pneumococcal types I and II may usually be aborted if intravenous serum therapy is undertaken and homologous concentrated anti-pneumococcal serum administered within the first three days of the disease. If begun on the fourth or fifth day of the disease the course of the disease may be favourably influenced but if begun later than the fifth day the result is doubtful. For early type I cases a total of 50,000 standard units are sufficient. Cases belonging to type II require 70,000 units. The intervals between each dose of 10,000 units should be at least 6 hours and may be extended to 12 if the treatment is begun within the first three days of illness. Unconcentrated anti-pneumococcal serum of high titre is permissible in adolescents and in early cases of moderate severity.

The intravenous administration of serum helps to combat toxæmia, cyanosis and delirium. The action is specific and no desensitization is necessary. In 18 out of 26 cases belonging to types I and II, serum treatment was begun within the first 4 days and pneumonia was aborted in ten

while in seven, improvement was apparent. Eight cases were treated with serum on the fifth and sixth days out of whom five showed signs of improvement and three remained uninfluenced.

S. K. S.

Diagnosis of Gonorrhea in Male.

HEROLD.

Jour. Urology, Baltimore, Sept., 1931.

In the presence of acute clinical symptoms and signs single stain smears are conclusive of gonorrhœa in freshly infected cases. If the suggestive clinical symptoms are present, the smears, if negative, should be followed by repeated examinations before clinical diagnosis is negatived. The presence of large numbers of bacteria, with or without typical intracellular or extracellular diplococci in the single stain, should be confirmed by a gram stain. If a gonorrhœal infection is suggested as a result of such observations, it is advisable that culture should be made. If the culture proves negative, provocative measures may be used more safely, and more smears and cultures should be made. The types of patients most frequently in this class are: first, non-gonorrhœal infections associated with stricture or chronic prostatitis; second, those individuals who have had some previous local medication, and third, the patient with a definite history of infection during the previous year. When smears are doubtful in a patient with suspected exacerbations of chronic infections instrumentation, massage or provocative measures should not be availed of until further clinical observations are made. Smears and cultures are complementary and positive smears may occur with negative cultures, and *vice versa*. Gonococci may occur in a saprophytic state and in such cases cultures are of the utmost importance. The value of cultures depends on the care in the collection of specimens, the efficiency of the medium, and the application of optimal physical conditions for growth. A simplified and satisfactory blood agar medium for the growth of the gonococcus has been referred to. Serologic methods seldom prevail over examination of smears and cultures, but serologic tests may be useful in the differentiation of systemic complications, associated with so-called post-gonorrhœal infections in the genito-urinary tract. In the same way skin reactions are of lesser import in diagnosis than smears and cultures. In the male, variants of staphylococci and other gram positive diplococci with similar morphology have to be differentiated from gonococci in smears and cultures.

S. K. S.

Serodiagnosis in Leprosy

RUBINO.

Annal. de l'Institut Pasteur, Paris, August, 1931.

The serums of lepers contain a specific substance which combines with formaldehyde treated sheep cells and rapid agglutination and sedimentation is effected. Such property of agglutination and sedimentation of cells is also possessed by certain normal or pathologic human serums. These hetero-agglutinins are attached indifferently to natural or formaldehyde treated sheep cells and this phenomenon can be therefore utilized to remove the hetero-agglutinins by fixation with the natural sheep cells before the serum formaldehyde treated sheep cell test. The presence of both untreated and treated sheep cells is essential in carrying out this test. It is stated that the reaction should be considered positive when sedimentation of treated cells takes place in less than an hour and is more marked than with the natural untreated sheep cells. When there is no agglutino-sedimentation or when the sedimentation is about equal in the tests in which formaldehyde treated and untreated sheep cells are used, it is considered negative. The reaction was positive in twenty-seven out of 36 cases of various forms of leprosy, negative in seven and doubtful in two. Tests with three hundred and four serums from persons with various other diseases all proved negative with the exception of one who had made many trips to the colonies and was possessed of two large ulnar nerves with tingling in the corresponding fingers. It was ultimately found out that the patient was infected with leprosy.

S. K. S.

Anterior Pituitary and Menstruation.

NOVAK.

Endocrinology los Angeles, July-August, 1931.

The most logical plan in the treatment of amenorrhœa, according to NOVAK, would be to inject folliculin hypodermically followed by similar administration of progestion. The latter is not available for human use and therefore, anterior pituitary luteinizing hormone may be used instead. No permanent stimulating effect on the ovary is produced by such mode of treatment. A rational treatment of the adiposogenital dystrophy is necessary. The empiric or semi-empiric administration of thyroid extract, some form of ovarian therapy for the amenorrhœa, and rather random efforts at a causal therapy by the use of pituitary preparations are all that may be done. NOVAK and HURD obtained good results in a large series of cases of functional bleeding, many of the patients being

young women in whom surgery or radio-therapy would serve as the last alternative. The treatment consists of the intramuscular injection of a luteinizing hormone prepared from the urine of pregnant women, by a new technic. Other subjects discussed which illustrated the application of scientific research to clinical problems are the pregnancy tests of Aschheim and Zondek, Friedman and others. In determining the completeness or incompleteness of removal of trophoblastic tissue in operations for incomplete miscarriage, hydatidiform mole or chorio-epithelioma, these are very helpful.

S. K. S.

Blood Transfusion in Obstetrics.

LYON.

American Journal of Surgery, January, 1932.

The value of blood transfusion as an aid to bring the mother and her baby to term in as favourable condition as possible is estimated by the author to be more than in obstetric practice. Four conditions as stated by DR. LYON in which blood transfusion is indicated are: anæmia of pregnancy, placenta previa, postpartum hæmorrhage and puerperal hæmorrhage. His views are based on his observations at the Women's Hospital in New York City.

In a series of cases thirty per cent. reached term with a hæmoglobin of 70 per cent. or less. This anæmia seems to be a continuance of a pre-existing anæmia, and becomes more marked during the last trimester of pregnancy. DR. LYON secures a compatible donor for every woman both in his service and in private practice. Donors are selected from amongst those who during their late pregnancy had a hæmoglobin of 70 per cent. or less, in case a transfusion is required during delivery.

In cases of suspected placenta previa when patient informs that she has had painless bleeding, no vaginal examination should be made until the patient has been hospitalized and a suitable donor is available and arrangements for a transfusion is made. Vaginal examination may start another hæmorrhage, but nevertheless the presence of placenta previa is to be definitely established. On confirmation of the diagnosis the patient should be delivered by a cesarean section.

DR. LYON prefers early institution of blood transfusion in addition to other procedures in vogue in the treatment of post-partum hæmorrhage. The tissues lose their tone in proportion to the blood loss and the recovery is necessarily more delayed.

In mild cases of post-partum infection repeated small transfusions are beneficial as thereby the patient's resistance is increased and her immunity established. No reaction is caused if an accurate cross-typing is done.

S. K. S.

Ocular Manifestations of Focal Infection.

SAMUEL L. HUBBARD.

Journal of the Medical Society of New Jersey, March, 1932.

Most eye diseases are but symptoms of trouble in other parts of the body. The author believes that any advance in the direction of clinical medicine and science establishes the truth of this fact.

The most common form of ocular disease is uveitis. And this condition is often immediately relieved when infected tonsils are removed. When the condition is due to abscess teeth, extraction is often followed by an immediate increase of the local symptoms of the uveitis, which is followed after about 24 hours by rapid cure. The writer is of opinion that some changes in the uveal tract are always left after uveitis which interfere with the nourishment of the lens, which tends to the development of lens opacities giving rise to the formation of cataracts at a later date.

Many cases diagnosed as primary glaucoma are in fact very low grade cyclitis which may be due to a sinus, some digestive disturbance or to some internal disorder of a chemical nature.

The origin of sympathetic ophthalmia is ascribed to some probable hæmatogenous factor and is supposed to be due to a specific metastasis from the eye first diseased. Involvement of the second eye is thought to be due to products of the affected eye and other sources of infection in the body.

S. K. S.

Treatment of Pernicious Anemia with Horse Liver Extract.

RICHTER, MEYER & IVY.

Jour. A. M. A., May 7, 1932.

An extract of horse liver has been elaborated by the authors. This is low in total solids being 1·8 gm. from 100 gm. of raw liver. An oral administration of the preparation induces a complete remission in pernicious anæmia. It is concluded after a preliminary comparative potency test of the anti-anæmia principle or principles active in pernicious anæmia present in horse and cattle liver that such constituent is greater in the liver of he horse.

S. K. S.